

Railway Age

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TIE A STRING TO YOUR DOLLARS

The dollars put into the maintenance and operation of economically obsolete locomotives, never return.

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THE BALDWIN LOCOMOTIVE WORKS
PHILADELPHIA

RAILWAY AGE

The Railway Position on Transportation Legislation

The railways, in answers by the Association of Railway Executives to a questionnaire issued broadcast by the Federal Co-ordinator of Transportation to ascertain the sentiment of the country as to proposed transportation legislation, have stated their position clearly and unequivocally on every point in a document which is a model of intelligent consideration of the transportation problem from the standpoint of the public interest. Every railroad man should familiarize himself with the questions asked by Co-ordinator Eastman and the answers the railways have made, and which were reported in last week's *Railway Age*. Similarly, persons inclined to be critical of the railways' policies during the present crisis—and this includes many railroad men—might well also examine these answers closely, asking themselves whether in them they can honestly find the slightest trace of unfairness to the railways' competitors or anything contrary to the public interest.

Mr. Eastman's questions are technical and refer to specific statutes, and consequently the railroads' answers to them may offer some difficulties to persons unfamiliar with the complexities of railroad regulation. In general, however, the railway position as expressed in the answers to the questionnaire is simply a plea for equality of regulation and self-support for all forms of transport, for honest bookkeeping for all transportation agencies, for simplicity instead of needless complexity in regulation and for a cessation of the invasion by the federal government of the rights of the states. Persons not inimical to these four principles will find nothing in the railroad position with which they cannot heartily agree.

Equality in Regulation

The railways ask for equality of all forms of transport in regulation, taxation and in a requirement either to furnish their own facilities or to make suitable contribution to the government for facilities furnished them. If it be not conceded that substantially the same degree of regulation of highway and water carriers is

necessary as that to which the railways are subjected, then it is asked that a substantial reduction be made in the extent of railway regulation. Specifically, in the absence of the same provisions for federal control of highway and water rates as of those of the railways, it is urged that the railways—

1. Be permitted to modify rates on short notice,
2. Be permitted to make rates to meet competition which will not be subject to suspension or rejection by the Interstate Commerce Commission, as at present, and without the necessity of making similar changes in the whole rate structure covering localities where such competition is absent,
3. Be permitted to charge lower rates for a long haul than for a short haul to meet competition which serves the long haul but not the short haul points.

True Economy Should Be the Gage

Carrying the plea for equality a step further, the railways ask that they—alone of all corporations—be not denied the privilege accorded to everyone else of operating vessels through the Panama Canal and upon the waterways of the country, subject to the orders of the Interstate Commerce Commission. Certainly in asking these concessions the railways cannot be accused of seeking any unfair advantage over their competitors; rather, it would appear, they have understated their claims to justice. From a standpoint of the public interest and the preservation of the national wealth, it is essential that transportation be divided among the several agencies according to the true economy—all costs considered of each.

This division cannot be accomplished if one agency is artificially hampered and hamstrung by regulation and red tape from which its competitors are free. The railway position favoring equality of all transport agencies, therefore, is not only one which they have a right in their own selfish interest to uphold, but it is one the prevalence of which is essential to the domination of the public interest and the conservation of the national

wealth. It is, in fact, a position which no honest, intelligent and social-minded person can do otherwise than support.

Honest Bookkeeping

In behalf of honest bookkeeping in transportation, the railways point out that "there can be no true economy unless all hidden factors of cost are brought to the surface" and that "transportation should be the most economical not only to the one who uses it but to the taxpayer and the general public. . . . In all such matters the public interest should be first, and by public interest we do not mean simply the interest of shippers but those who support the agencies of transportation either through the payment of rates or the payment of taxes."

The bookkeeping of the railroads shows all the costs of railroad service—interest and taxes on the investment in roadway as well as operating costs and capital charges on equipment. By contrast, the bookkeeping of motor and waterway transport includes only the costs which are passed along to patrons and excludes that proportion of the costs which is paid by the taxpayers.

As the railroads make clear, a measure of comparative costs of the several agencies of transport is impossible under present differences in bookkeeping practices and they insist, in the public interest, that the payments of the taxpayers be taken into account. Specifically, toward this end, the railroads contend that fair tolls should be charged for the use of the inland waterways improved at public expense, and that there should be levies on commercial motor vehicles sufficient to meet the cost of highway construction and maintenance which their operation entails. Can anyone deny the justice, the social desirability or economic soundness of this contention?

Banish Needless Complexity in Regulation

In the interest of simplicity, rather than needless complexity, in transport regulation the railways ask for a modification in the law by which they are required to pay "reparations" if it is established, *ex post facto*, that a rate charged was too high. Shippers are now allowed three years in which to file such complaints. The railroads believe that this period should be reduced to six months and that shippers should be entitled to collect only an amount equivalent to damages actually sustained. Under the present law a shipper can collect the difference between the lower and the higher freight rate even though he has passed on the higher rate to his customers. He can also collect lawyers' fees if he wins his case, and this provision has offered a "perpetual temptation for reparation damage suit lawyers to stir up trouble." It has been found "burdensome and provocative of litigation," which is expensive not only for the railways but the government as well. Surely a provision which provokes litigation and militates against the amicable settlement of legiti-

mate business differences is not in the public interest and should be modified.

Uphold States' Rights

In defense against federal invasion of rights hitherto generally acknowledged to inhere to the states, the railways urge that the matter of the weight and size of motor vehicles which are to be permitted upon the public highway be left to the legislatures and the regulatory agencies of the states, the taxpayers of which have to provide the highways. Some states can afford wide and heavy highways which can safely accommodate large vehicles. Others cannot do so. It would be a grave imposition upon the less prosperous states to have the federal government attempt to force them to admit to their roads vehicles of a size and weight which would speedily destroy them. As long as the states lay no limitations upon vehicles from without their borders which they do not place upon those registered within the states, they cannot honestly be accused of placing obstacles in the way of interstate commerce; and their right to police and otherwise regulate traffic on their own highways ought to be safe from federal interference. Commercial motor transport interests, to be sure, desiring above all else to expand their business, object to the wise safeguards of the Constitution which protect the states in the exercise of at least some degree of sovereignty in such matters. Leaving such special interests out of account, however, can any disinterested citizen view the railroad position on this question as anything other than sound Constitutional law which all Americans who believe in our federal form of government, with its division of power and responsibility between the states and the nation, must strive to uphold?

Public Interest the Sole Consideration

There are other points made by the railroads in explaining their position which we have not touched upon, but all of them are in harmony with the general policy as outlined. There is no request for any special favors whatsoever for the railroad industry, such as might easily have been made upon grounds of national defense or general social benefits arising from efficient railroad transportation. Instead the railroads have based their entire case upon a concept of the broad public interest and an absence of special pleading to which the most disinterested scholar could not take the slightest exception. Railroad men should take courage in the future of their industry which can be so strongly defended with weapons so fair. Impartial analysts such as Co-ordinator Eastman and the special committee which is advising the Administration on transportation matters cannot, we believe, fail to be impressed by the restraint and fairness shown in this expression of the railroad position, especially when it is contrasted with the extravagant claims so frequently advanced in an attempt to justify the special favors now enjoyed by the railways' competitors.

Call-On Signals

A close study of the Bureau of Safety's report on the rear-end collision on the Erie at Binghamton, N. Y., on September 5, reveals a number of contributing factors, including short-flagging, the failure of the engineman properly to control speed when operating under a call-on signal indication, and the fact that the engineman, when he saw an automatic signal ahead standing at danger, jumped to the conclusion that he would not be required to stop until he arrived at that signal, whereas a train was actually standing in the intervening space. However, this accident once more brings to the front the problem of call-on signals.

It is to be inferred from the report that the leverman, in using the call-on signal, did not violate the rules or depart from the usual practice on the Erie, and incidentally it is understood that these rules conform with the Standard Code. Nevertheless, it is questioned whether the statement in the Bureau's report that this is the "usual practice throughout the country" is warranted, for many roads have placed greater restrictions around the use of the call-on signal.

One such restriction, being used at important interlockings on the Milwaukee and the Southern, is to confine the function of the call-on signal to interlocking limits and locate a regular track-circuit-controlled advance automatic signal at the leaving end of the interlocking limits. With this arrangement, the towerman can give authority by means of the call-on signal, to move within the interlocking limits only. If the automatic signal indicates danger, an engineman would, according to the rules on most roads, be required to stop and then proceed. In considering the merit of such an arrangement, the argument might be advanced that if an engineman would not obey the restricted speed regulation conveyed by the call-on signal, he would not obey such a restriction when conveyed by the automatic signal. The point of difference, however, is that the towerman, with his opportunity to use the call-on signal indiscriminately, is eliminated as a possible contributor to accidents. Furthermore, under this arrangement an engineman faces a clean-cut distinction between the function of the call-on signal to give him authority to make a move within interlocking limits, and of the automatic signal to direct his movement into an automatic block.

Another arrangement that is employed by some roads to meet this situation is to provide a stop-and-proceed aspect on the home signal. On those portions of the Baltimore & Ohio where color-position-light signals are in service, this aspect includes two red lights horizontally with a lunar white marker. In order to display this indication, the leverman must make two different operations, so that he is not apt to give this special signal inadvertently. When operating under such a signal, the speed restrictions are "one-fourth normal maximum speed, prepared to stop short of train or obstruction."

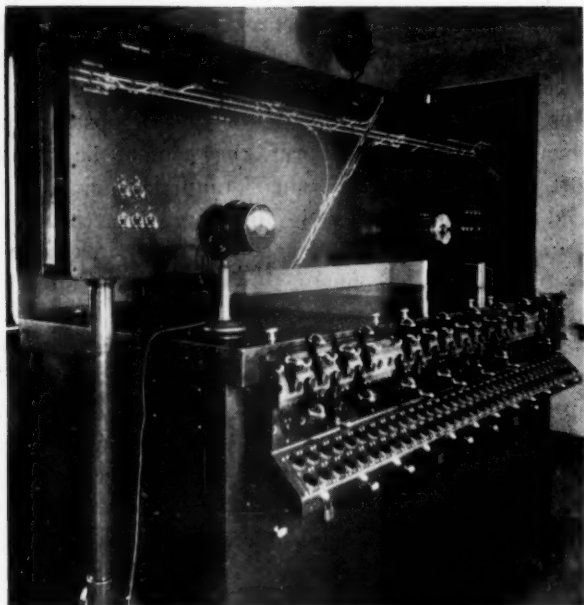
On the Pennsylvania, a train is first brought to a stop. In territories where position-light signals are in service, the "stop then proceed" aspect is used. Where semaphores are in service, the leverman can display the caution-slow-speed aspect after the train is stopped, but he must not only operate the lever but also push a button. The speed is limited to "not to exceed 15 m.p.h., prepared to stop short of train or obstruction." When handling a long train that cannot be stopped short of an obstruction when running 15 m.p.h., the speed must be reduced below that figure.

For those roads which consider it impracticable at this time to install one of the arrangements just described, it might be well to see what can be done to improve the rules. First it must be remembered that a call-on signal ordinarily is used when the track-circuit-controlled signal cannot be cleared. Therefore, a call-on usually leads a train into a position of potential danger. The rules governing such a movement are intended to protect against this danger, and safety requires a proper understanding of the requirements and strict adherence to them. In view of the fact that accidents do occur occasionally, it is to be inferred that some enginemen do not understand the requirements and, therefore, need some help.

One way to clarify the situation quickly is to change the rule to conform with the practice on certain roads, as for example the Union Pacific, where a call-on signal is used only for controlling switching movements or slow-movements through crossovers or on to a siding in an interlocking but not for advancing trains on main lines. If circumstances are such that operating officers consider it absolutely necessary, under certain conditions, to advance trains on main lines by call-on signals, it might be well to establish a rule that the train first be brought to a stop before clearing the call-on. One road has a rule limiting the speed to 10 m.p.h. rather than leaving it to the engineman to establish a speed at which he thinks he can stop short of a train or obstruction.

After considering ways and means of surrounding call-on signals with limitations and rules, we come back to the old question, why use call-on signals at all? A serious rear-end collision occurred on the Burlington at Buda, Ill., on June 30, 1924. On this road, the rule prohibited the use of a call-on signal for advancing a train on a main track, but a leverman was so impressed with the importance of not stopping a fast mail train that he overstepped in giving this train a call-on signal to proceed into an occupied block. Here again the engineman failed to comply with the speed restrictions. In order to eliminate this important factor from the cause of future accidents, the Burlington proceeded to eliminate call-on signals, and what is more, this road is experiencing no serious difficulties in getting trains through interlockings. It may be seen, therefore, that there are several means available for safeguarding the use of call-on signals. The problem deserves serious consideration.

An Interlocking Six Miles Long



Interlocking Machine and Track Model in Gould Tower

AN extensive interlocking layout has been installed at Gould, Ohio, near Toledo, to direct train operation over a new track layout, including both junctions and crossings, and joint track arrangements involving four roads—the Wabash, the Toledo Terminal, the Cincinnati & Lake Erie and the Nickel Plate. Layouts formerly involved in three separate mechanical interlockings, as well as several new crossings, switches and junctions, are included in the new installation. The control arrangement includes a regular electric interlocking for the nearby functions, as well as separate levers for those more remote.

General Layout

As a practical means of extending a boulevard system, the City of Toledo purchased about six miles of the right-of-way of the Nickel Plate, between Maumee and Walbridge Park. In order to clear this area, the Nickel Plate made a complete realignment of its tracks. A single-track line of the Wabash paralleled the old Nickel Plate right-of-way, about one mile distant. At the west end of this section, near Maumee, the Nickel Plate built a connection, $\frac{3}{4}$ mi. long, from its old line to the Wabash. This connection crosses the track of the Cincinnati & Lake Erie, a high-speed electric line, adding

Nickel Plate installs plant including remote control of outlying junctions—
Trains operated by signal indication
over 15 track miles

By J. H. Oppelt

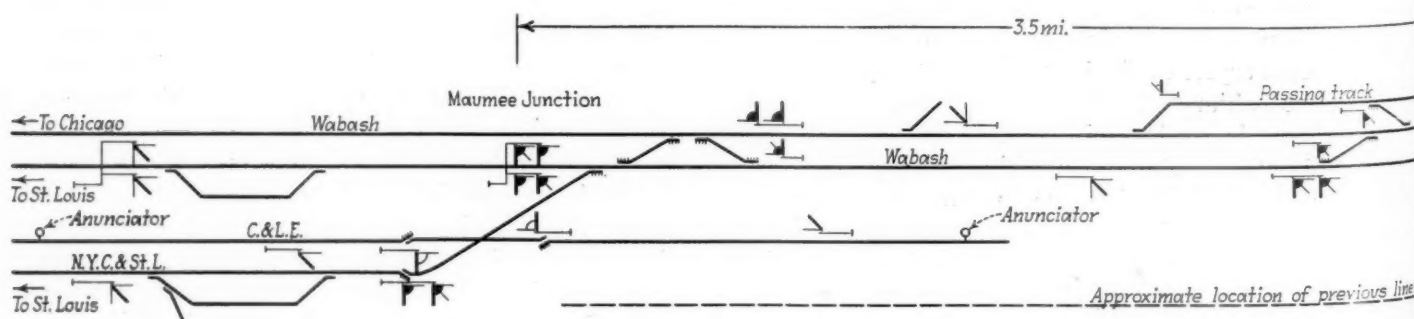
Signal Engineer, New York, Chicago & St. Louis,
Cleveland, Ohio

another crossing. At the east end of the layout, near Walbridge, the Nickel Plate line formerly crossed under the Wabash, but the Nickel Plate has now built a new line $\frac{3}{4}$ mi. long on a 0.5 per cent grade, to connect with the new end-of-double-track at Walbridge Junction.

From the connection at Maumee, the Nickel Plate built a single-track line paralleling, at 13-ft. centers, the Wabash line from Maumee to Walbridge Junction, approximately six miles. These two tracks form a double-track line between these points, which is now used jointly by the two roads. From Walbridge Junction to Toledo, three miles, each road continues to use its own single-track line.

Under the old arrangement the single-track line of the Toledo Terminal, a belt line, crossed the single-track lines of the Nickel Plate and the Wabash with crossings about one mile apart and with a separate mechanical interlocking at each crossing. In the new layout, the Toledo Terminal crosses the joint Wabash-Nickel Plate double-track line at Gould north of which points its line is double track, the end-of-double-track switch formerly being handled by a spring switch. Under the new arrangement, this switch is power operated and is included in the interlocking. In the old layout there was only one interchange track between the Toledo Terminal and the Wabash. In the revised track layout two more interchange tracks were added, together with additional switches and crossovers, all included in the interlocking to facilitate interchange movements.

Paralleling the Wabash-Nickel Plate line are two passing tracks, one east of Gould and the other west. On each of the passing tracks, the switch on the end toward Gould is power operated and included in the interlocking, while the switch at the remote end of each passing track is hand thrown. However, signals controlled from the Gould tower are provided to direct train movements leaving these sidings at the remote end. A Union Type-F electric



Track and Signal Plan of Six-Mile Territory Maumee

interlocking was installed to control the switches and signals in the vicinity of the crossing at Gould, the area controlled by this machine extending along the Wabash-Nickel Plate line as far as the ends of the passing tracks. The interlocking machine has a 35-lever frame with 16 switch levers for 24 switches and 4 derails; 13 signal levers for 31 signals and 6 spare spaces.

At Maumee Junction there is a junction of two single-track lines of the Wabash, one leading to St. Louis, Mo., and the other to Chicago, with a mechanical interlocking formerly in service for the control of the switches and signals. The new Nickel Plate connection was built into this layout, and the arrangement includes two crossovers and a single switch, together with the signals, all of which, together with the derails and signals for the crossing of the Nickel Plate with the Cincinnati & Lake Erie, are controlled by a separate set of miniature-type levers mounted in the lower left-hand corner of the track model at Gould. Four of these levers are for five switches and three derails, and the remaining four levers control 11 signals.

At the west end of the joint double-track at Walbridge Junction, there are two crossovers and four signals, all of which are power-operated and controlled from a set of five miniature-type levers which are mounted at the right end of the track model at Gould. Two of these levers control the four switches, and three levers control the eight signals in the Walbridge Junction layout.

A large illuminated track model, which is mounted over the interlocking machine at Gould, reproduces the entire track area between Maumee Junction and Walbridge Junction, including approach sections. This model shows the location of all trains within the controlled territory, and also indicates the changing of the aspect of all controlled signals. Traffic lights show the direction for which traffic control is set up for each track between the three controlled sections. The traffic locking does not require the use of traffic levers, the circuit being set up by the operation of the signal levers. Thus, the leverman has direct charge of the direction of train movements by signal indication over the entire area between Maumee Junction and Walbridge Junction.

The new double-track arrangement, with trains of both roads operated in either direction on both tracks, is of decided advantage in keeping trains moving and in reducing delays. The improved layout of the interchange tracks at Gould has likewise facilitated interchange movements. Additional economies in operating expenses have resulted from the elimination of the old me-

chanical interlockings. Formerly, three operators were required at Maumee on the Wabash, whereas one agent on the day trick now handles the station work. At Gould one operator on each trick handles the new inter-

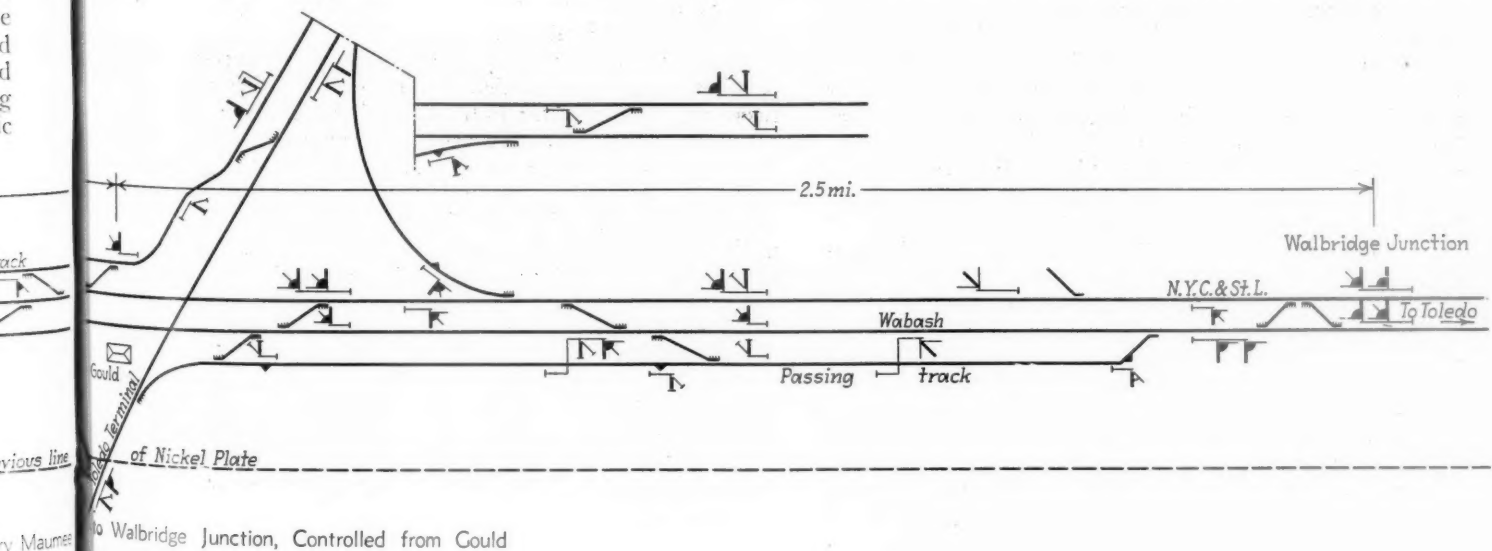


Signals on Cantilever Mast at Maumee

locking, whereas one man on each trick was formerly required at each of the two mechanical plants.

All construction work on this installation was carried out by the Union Switch & Signal Construction Company, under the supervision of the signal department of the Nickel Plate.

AN EXPENDITURE of £2,000,000, including £1,000,000 for rolling stock, is contemplated by the Great Western of Great Britain in its program of "new works" for 1934. The new rolling stock, which will be built in the G. W. R. shops at Swindon, will include 90 locomotives as follows: 10 "castle" class such as are now used on the "Cheltenham Flyer"; 10 "hall" class for express passenger services; 30 for suburban and local train services; 25 tank locomotives; and 15 internal combustion locomotives. Cars to be built include 140 corridor coaches for long distance passenger service; 50 local and suburban passenger cars; 10 trailer cars; and 1,930 freight cars of 12 tons capacity. In addition to the foregoing, the program contemplates the relaying of 401 mi. of line with 30,000 tons of rail and 600,000 ties; an expenditure of £262,000 for maintenance of stations and right-of-way fences; and the construction of 250 containers which will bring the number of containers in service on the G. W. R. to 1,673.



Eastman Suggests Increased Car Retirements

WASHINGTON, D. C.

CO-ORDINATOR Eastman on November 25 addressed personal letters to the chief executive officers of Class I railroads, with which were inclosed several statements relating to freight car equipment comprising the summarized replies to his questionnaire which called for a complete survey of the freight car equipment of all Class I railroads. This survey forms the basis of what is described as probably the most comprehensive study of the general freight car situation ever undertaken in the United States.

The Co-ordinator states that the purpose of the inquiry is to develop facts for use in consideration of the feasibility of car pooling, but a secondary object is to direct the attention of railroad executives to the con-

In the tabulation of car construction, separations are made as between wooden and steel cars. The summary discloses the fact that 95.4 per cent of all cars have steel underframes.

A similar separation is made for truck construction, and emphasis is placed upon the fact that cars equipped with arch-bar trucks, which under the rules of the American Railway Association will not be accepted in interchange after January 1, 1936, still constitute 32.1 per cent of the total freight car equipment.

The Co-ordinator is "somewhat disturbed" to find that the programs of a few roads contemplate the expenditure of considerable amounts in repairing the older cars without replacing the arch-bar trucks, "the early elimination of which is advocated by railroad officers in the interest of safety and economy."

The average cost of all railroad freight cars is given as \$1,596, while the amount of accrued depreciation averages \$647 per car. At the present average age of 15.6 years, this rate of depreciation, with due allowance

Cars to Be Retired and Repaired—1933, 1934 and 1935

	1933		1934		1935		Total	
	Retire	Repair	Retire	Repair	Retire	Repair	Retire	Repair
Box—Auto	36,264	50,522	36,253	104,811	31,442	104,409	103,959	259,742
Ventilator	2,356	1,695	1,349	4,716	968	5,421	4,673	11,832
Refrigerator	1,976	240	1,631	1,322	1,189	1,873	4,796	3,435
Stock	1,216	3,082	2,433	10,676	2,746	8,976	6,395	22,734
Gondola	16,395	13,597	19,331	48,474	17,025	47,178	52,751	109,249
Hopper	8,443	35,755	12,459	54,743	11,338	55,276	32,240	145,774
Flat	3,613	1,786	4,217	5,966	4,747	5,684	12,577	13,436
Tank	6	352	186	595	330	690	522	1,637
Miscellaneous	559	166	163	316	155	380	877	862
Total	70,828	107,195	78,022	231,619	69,940	229,887	218,790	568,701
Per cent of total owned (as of July 1, 1933)	3.5	5.2	3.8	11.3	3.4	11.2	10.7	27.7

NOTE: Figures for 1933 represent program from July 1 to December 31, 1933.

dition of their own freight car supply, with a view to effecting the retirement of worn out or obsolete equipment.

The original questionnaire is being supplemented, the Co-ordinator continues, by inquiries directed to those railroads whose reports, when analyzed, indicate conditions which call for a more detailed study of repair programs. The distribution of the summaries is designed to provide railroad officers with general data which may be used for comparison in studies of their own particular equipment condition.

The statements, consisting of five sectional summaries, show by classes of cars, separated into five-year age groups, the number in service, their average age, original cost, amount of depreciation, the type of construction and the number scheduled for retirement through 1935.

In commenting on the summaries the Co-ordinator calls attention to the various factors which should be considered in determining obsolescence or unserviceability of a freight car. While recognizing that age alone is not the measuring stick, the fact that over 300,000 cars, or 15.4 per cent of all freight cars, are more than 25 years old, is cited as "indicating the need for a careful revision of repair programs which call for heavy expenditures to continue the older cars in service." Attention is also called to the fact that the average of 15.6 years understates the age of freight cars to the extent that rebuilt cars are included as new cars.

The effect of the tare weight upon operating costs is also stressed in the co-ordinator's comments. Attention is directed to the excessive ratio of tare to carrying capacity in cars of older designs. As an example, reference is made to the new American Railway Association's standard 50-ton box car, with a ratio of 34.5 per cent dead weight to revenue load, compared with a ratio of 43.2 per cent in box cars over 25 years old.

for salvage value, assumes an average life of 34.6 years, while the Co-ordinator points out that only 2.8 per cent of all cars are over 30 years of age. The inference, he says, is that freight car equipment in general is somewhat under-depreciated.

The suggestion is made that the reluctance of some railroads to retire the older cars may be due to a desire to avoid burdening current operating expenses with the cost of retirement. A remedy for this condition is proposed in the suggestion that the railroads request special authority from the Interstate Commerce Commission to charge to "Profit and Loss" the cost of retirement not covered by accrued depreciation and salvage. The Co-ordinator reports that the responses to this suggestion have been encouraging, and those roads which have not as yet set up a retirement program are asked to give further consideration to the question, in the light of the facts developed in the survey.

In a separate summary, the Co-ordinator reports the number of cars scheduled for general repairs and retirement. For the last half of 1933, 70,828 cars, or 3.5 per cent of the ownership are being retired and 107,195, or 5.2 per cent given general repairs. In 1934 and 1935, the retirements are given at 78,022 and 69,940 respectively, and the repairs at 231,619 and 229,887. The total is given as 218,790, or 10.7 per cent, to be retired, and 568,701, or 27.7 per cent, to be repaired.

The Co-ordinator's comment is to the effect that a revision of repair programs, with a view to long-range economy rather than expediency, will probably increase the number of retirements and decrease the number of general repairs and that a further study of the questionnaire returns may develop other items of general interest, in which event subsequent bulletins will be issued.

The schedule for retirements and repairs is given in the accompanying table.

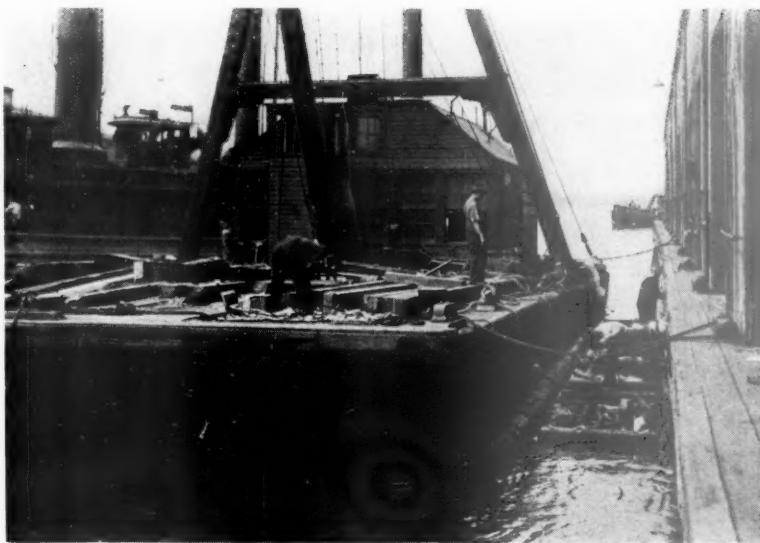
Piers Given Thorough Protection Against Substructure Fires

Wrought iron fire stops, sprinklers and cellar nozzle holes in decks of Pennsylvania structures at New York, insure quick control of any outbreaks

TO insure the protection of its larger three-pier produce terminal at New York against a serious under-deck fire, and to avoid increased insurance rates which threaten all pier owners at New York, unless suitable fire protection is afforded, the Pennsylvania has so equipped the substructures of its piers with fire stops, sprinklers and floor holes for the application of cellar nozzles, that such a fire is now practically impossible. One of the unusual features of the protection is the use of genuine wrought iron plate for the fire stops, which material was selected primarily because of its high resistance to the corrosive action of sea water, its incombustibility, and the relative ease with which it could be installed under the congested working conditions which prevailed.

Fear of under-deck fires in water front structures was heightened considerably a couple of years ago when one of the Cunard Line piers at New York was destroyed by such a fire. In this instance, fire raced beneath the timber deck from panel to panel, unchecked and uncheckable, dropping one section of the deck after another into the river. Adequate land and water fire-fighting apparatus checked the destruction of the superstructure, but was powerless to reach the conflagration beneath the deck, which was unbroken in its extent by fire stops and provided with neither sub-deck water sprinklers nor with deck openings whereby the fire might have been reached from above. Built in 1889 and 1904, and, likewise without sub-deck fire protection, the Pennsylvania's three produce piers were open to such a fire.

The piers, which are designated No. 27, 28 and 29, are located on the Hudson River water front in lower



All of the Work Was Done From the Sides of the Piers With the Assistance of a Derrick Boat

Manhattan. Prior to alterations and improvements made in 1927 and 1929, the piers were approximately 1,000 ft. long and 75 ft. wide, and were connected at their inshore ends by a shed-covered bulkhead about 50 ft. wide and 715 ft. long. The total floor area of the piers and bulkhead shed was approximately 241,000 sq. ft. All three piers had dock space on both sides throughout their length, the slips between the piers being about 140 ft. wide.

The piers themselves, which were constructed of timber piling with heavy timber decks, had superstructures enclosed with corrugated metal siding, and timber-covered monitor-top roofs supported on light structural steel roof trusses. The principal difference in the construction of the three piers was that the shed framework of piers No. 27 and 28 was of heavy timber construction, while that of pier No. 29 was of structural steel. No fire stops or other means of controlling or fighting a fire beneath the decks were provided, although each pier shed was equipped with an electrically-operated stand-pipe water system adequate to cope with any fires above the deck.

The improvements made in the piers in 1927 and 1929 left them unchanged in size, shape or location, except that their inshore ends were made a part of an enlarged bulkhead shed. However, the pier substructures were renewed where necessary, new piles and caps replacing those which showed evidence of decay or deterioration, and the plank flooring in each pier was covered throughout with a 10-in. reinforced concrete deck slab.

At the time of the improvements, approximately 118,300 sq. ft. of trucking and display area was added to the



Looking Along the Smooth Face of One of the Wrought Iron Plate Fire Stops

old bulkhead. This addition was provided in three units by extending the old bulkhead toward the river and re-claiming a portion of the slip areas serving the piers. Within the new area, a 12-in. reinforced concrete slab deck was provided directly on a timber pile substructure. In enclosing the new bulkhead area, practically the same type of construction was used as in pier No. 29, that is, light structural steel framework enclosed with corrugated metal siding and a double-pitched board roof.

During the construction of the additional bulkhead shed area, concrete wall fire stops were provided at intervals beneath its deck, but no similar facilities were installed beneath the decks of the piers. Now the Pennsylvania has provided thorough under-deck fire protection for all three of the piers themselves, this including fire stops, water sprinklers, and holes through the deck at intervals to permit the use of cellar fire nozzles.

Genuine Wrought Iron Plate Fire Stops

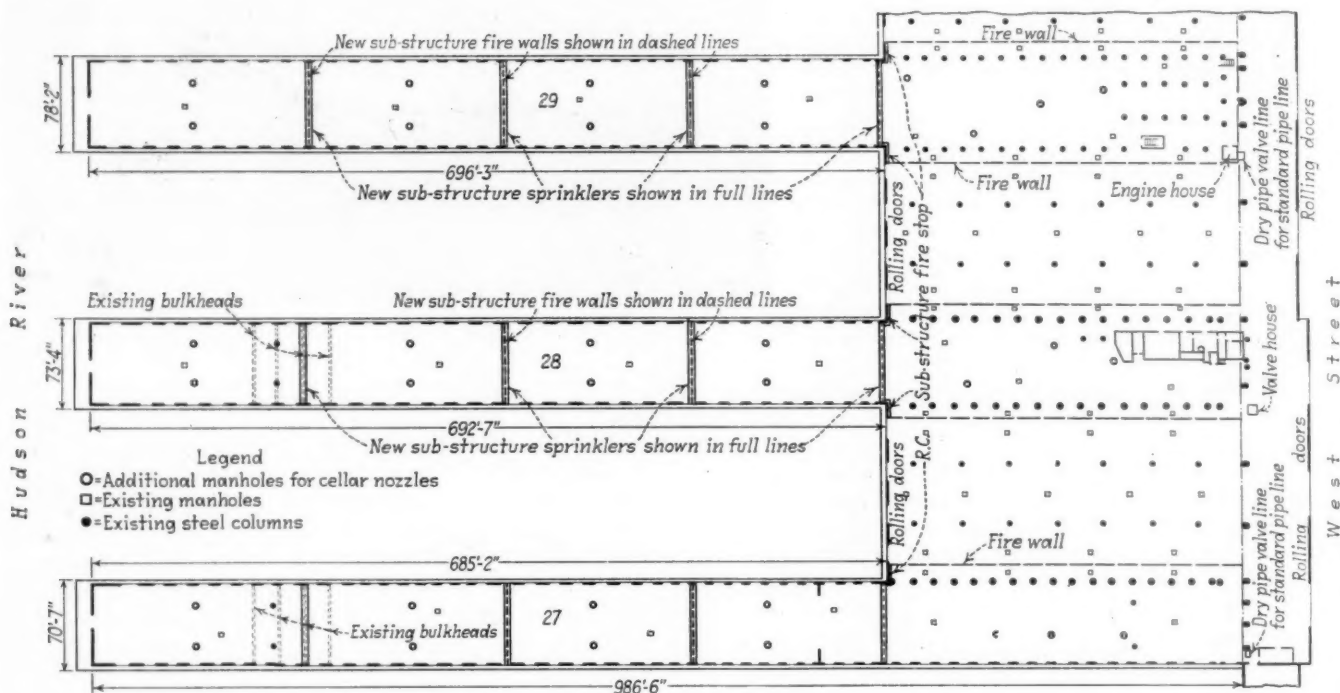
The fire stops, which are provided at intervals of about 160 ft., are made of genuine wrought iron plates,

selves were bolted top and bottom to 5-in. by 10-in. wales, which, in turn, were bolted to the piles. Through the use of the wales, which were mortised or notched as required to compensate for unevenness in the alinement of the pile faces, the plate walls were made truly vertical and held in good alinement. Furthermore, the wales permitted the bolting of the plates at close intervals between piles, giving additional stiffness to them, especially near the bottom, where a face as well as a backing wale was provided.

Consideration was given to constructing the fire stops of certain other materials, but wrought iron was selected for several reasons, the more important being its high resistance to the corrosive action of sea water, and its ability to absorb, without damage, any shocks to or actual movement in the piers as the result of their being struck by lighters, tugs or other river boats.

Installation of Plates

Installation of the plates also proved relatively simple, in spite of the cutting necessary in fitting them up under the deck structure. In this, working from float stages



General Plan of the Three Piers and Part of the Bulkhead, Showing Location of the New Substructure Fire Stops, Sprinklers and Cellar Nozzle Holes

10 ft. by 5 ft. and $\frac{1}{2}$ in. thick, placed on end and side by side to form a continuous wall from one side of the pier to the other. All plate edges are lapped and bolted with $\frac{1}{2}$ -in. wrought iron bolts and nuts. The length of the plates, or the depth of the wall, is such that the plates fit up snugly against the underside of the timber sub-floor and extend down to mean low water. Thus, under all stages of tide, which ranges from about four to five feet, the stops are continuous between the water and the deck, effectively breaking the draft or the run of flames longitudinally beneath the pier.

To make the stops most effective against fire communication, care was taken in fitting the plates around the timber stringers of the floor system and up against the decking, and all of the lines of intersection between the plates and the deck timbers were sealed with wooden moulding strips, nailed to the decking. The plates them-

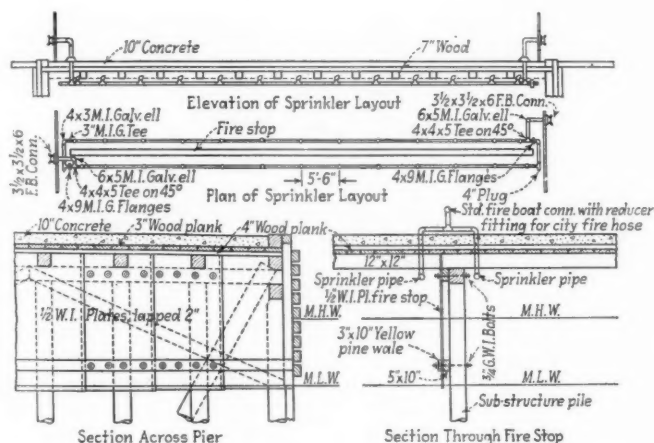
pushed in between the transverse rows of piles, a template was first made of the deck bottom in the line of the fire wall, and the measurements were then transferred to the plates as they were laid out in pre-assembled order on a derrick boat alongside the pier. All cutting of the plates, as well as drilling for the bolting of the plates together and to the wales, was done with acetylene torches on the derrick boat, both because of the greater convenience of doing it there in the open and because of the fire hazard involved in operating any kind of a flame beneath the piers.

As the plates were cut they were picked up by the derrick and lowered to a float stage where they were laid flat. The stage was then pushed beneath the pier and, one by one the plates were hoisted into position by means of a chain hoist, which was given an eyebolt hitch to the deck timbers and a hook and ring bolt hold on

the plate through a special hole burned out for that purpose. As hoisted into place, each plate was spiked into position temporarily, to be bolted up later. This permitted a maximum number of plates to be set up during the periods of low tide, when this work could be done to the best advantage. In fact, with only a few feet of head room beneath the decks during high water, work during these periods was confined largely to hole boring and bolting operations above the water level. The remainder of the boring and bolting had to be done, of course, during low tide. All boring of the substructure timbers was done with air-operated drills, supplied with air from the compressor on the derrick boat.

Sprinklers Form Water Curtains

Water sprinklers were provided in the deck fire protection primarily as an adjunct to the fire stop walls to increase their effectiveness as barriers to the spread of fire under any circumstances. These are arranged on single feed lines along each side of each fire stop in such manner that they throw a solid face of water upward against the underside of the deck a few inches from the fire stop and cause an unbroken curtain of water to flow down both faces of the stop. This arrangement insures that no fire can work through the

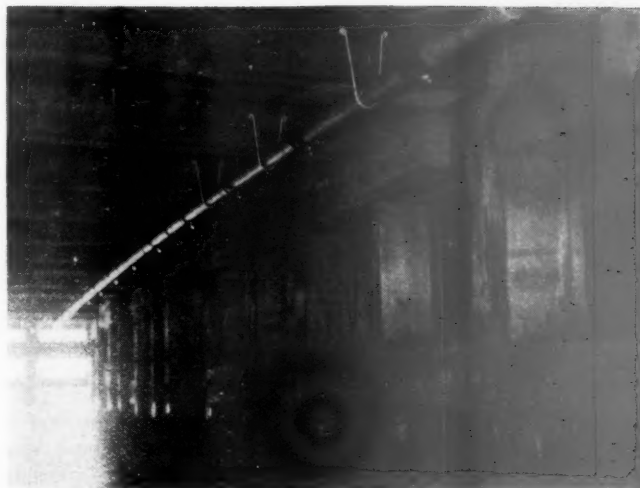


Details of the Fire Stop Construction and the Sprinkler Layout

timber decking over the top of the metal stop wall and, also, that the stop wall itself will not become hot enough to transfer a fire through it to abutting or adjoining timbers. It is felt also that the water curtains will prevent possible serious buckling of the metal plates under any heat to which they might be subjected in the case of a severe fire.

Arrangement of Sprinkler System

The sprinkler system is not automatic in operation, and the arrangement at each fire stop is independent of that at all of the other stops. Essentially, the arrangement at each stop consists of two 3-in. wrought iron feed lines, one on each side of and from 3 ft. to 3 ft. 7 in. away from the stop, and from 15 to 20 in. below the deck, these distances varying with the different arrangement of the deck timbers in order to permit complete water-curtain action over the stops. The sprinkler heads used are mostly of the window water-curtain type, although cornice sprinklers are used at special points to secure the wetting desired. These heads are spaced from 5 ft. 8 in. to 6 ft. 10 in. apart, depending upon the spacing of the deck stringers, and, in all cases, throw



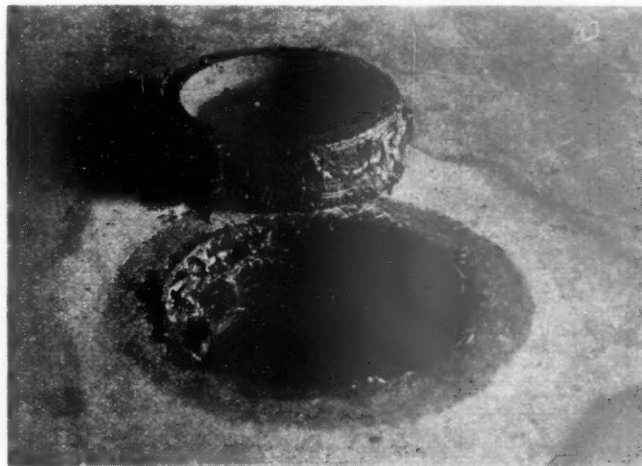
The Back Side of One of the New Plate Fire Stops, Showing the Position of the Water Sprinkler Piping

a spray of sufficient spread to wet completely the underside of the deck at the stop.

Both feed lines at each stop are joined at opposite sides of the pier and are brought up to three-inch Siamese steamer hose connections located outside of the pier shed and about 3 1/2 ft. above the deck level. In the case of fire, pump-equipped tugs or fire boats can make hose connection at either one or both ends of the feed lines, or, any of the hose of the standpipe system within the piers can be connected to the Siamese connections to supply the sub-deck sprinklers with water. Tests of the sprinklers have proved their effectiveness in drenching the deck area along both sides of the fire stops and in producing the water curtain desired over the faces of the stops. The individual sprinkler systems are self-draining and remain dry, except when tested or put in service to quench a fire.

Cellar Nozzle Holes Provided in Decks

Spaced approximately 160 ft. apart on each pier, the fire stops and sprinklers are effective only in checking the run of a fire lengthwise of the piers. To permit attacking a fire at any point between the stop walls, 10-in. circular holes, with cast iron caps flush with the deck surface, were cut through the decks. These holes are designed to permit the use of cellar fire nozzles,



Close View of One of the 10-In. Cellar Nozzle Holes Provided in the Pier Decks—Note How It Is Well Greased to Permit Ready Removal of the Cover

which, when inserted vertically through the deck, throw an upward spray against its under side over a circular area approximately 50 ft. in diameter. Eight of the nozzle holes were provided in each pier deck, two in each section between fire stops, these being sufficient, with the few manholes already in the deck, to enable a sub-floor fire to be quenched at any point. The new bulkhead areas added between the piers in 1929 were provided with sufficient deck manholes when constructed to permit the effective use of cellar nozzles, but since the old sections of the three piers included in the re-designed bulkheads area did not have sufficient manholes, cellar nozzle holes were provided in them where required to give them full protection.

As now protected, there is little concern about a serious fire at these piers. With adequate fire pumps to supply the electrically-operated dry-pipe standpipe system throughout the pier sheds, and fire alarm boxes to call the company employee fire brigade and city-owned fire-fighting boats and apparatus, there is little likelihood that a shed fire could gain much headway. Now, with the substructures fire stops, sprinklers and deck holes for the use of cellar nozzles, there is equally small likelihood that a serious sub-deck fire could occur.

The additional fire protection in the piers was planned and installed under the direction of A. C. Watson, chief engineer, New York zone of the Pennsylvania, and under the immediate supervision of E. L. Goldsmith, supervisor of construction. The wrought iron plates for the fire stops were furnished by the A. M. Byers Company, Pittsburgh, Pa., and were installed under contract by J. Rich Steers, Inc., New York. The sub-deck sprinklers were furnished and installed by the Grinnell Company, Inc., New York.

merchandise and ore showed increases as compared with the week before, and all but merchandise and coal showed increases as compared with last year. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week Ended Saturday, November 18, 1933			
Districts	1933	1932	1931
Eastern	132,596	127,152	141,290
Allegheny	112,152	104,990	130,454
Poconong	41,706	43,980	40,408
Southern	88,104	86,887	97,845
Northwestern	70,868	66,513	75,973
Central Western	100,861	91,732	107,380
Southwestern	53,002	51,369	60,153
Total Western Districts	224,731	209,614	243,506
Total All Roads	599,289	572,623	653,503
Commodities			
Grain and Grain Products	32,452	29,596	36,872
Live Stock	22,383	20,938	25,547
Coal	135,803	137,908	116,699
Coke	7,372	4,969	4,850
Forest Products	24,007	16,076	21,227
Ore	4,611	2,991	4,901
Merchandise L.C.L.	165,174	170,252	209,033
Miscellaneous	207,487	189,893	234,374
November 18	599,289	572,623	653,503
November 11	577,676	536,687	689,960
November 4	607,785	587,302	717,048
October 28	636,674	617,284	740,363
October 21	650,482	641,985	769,673
Cumulative Total, 46 Weeks	25,814,114	25,203,352	33,817,668

Car Loading in Canada

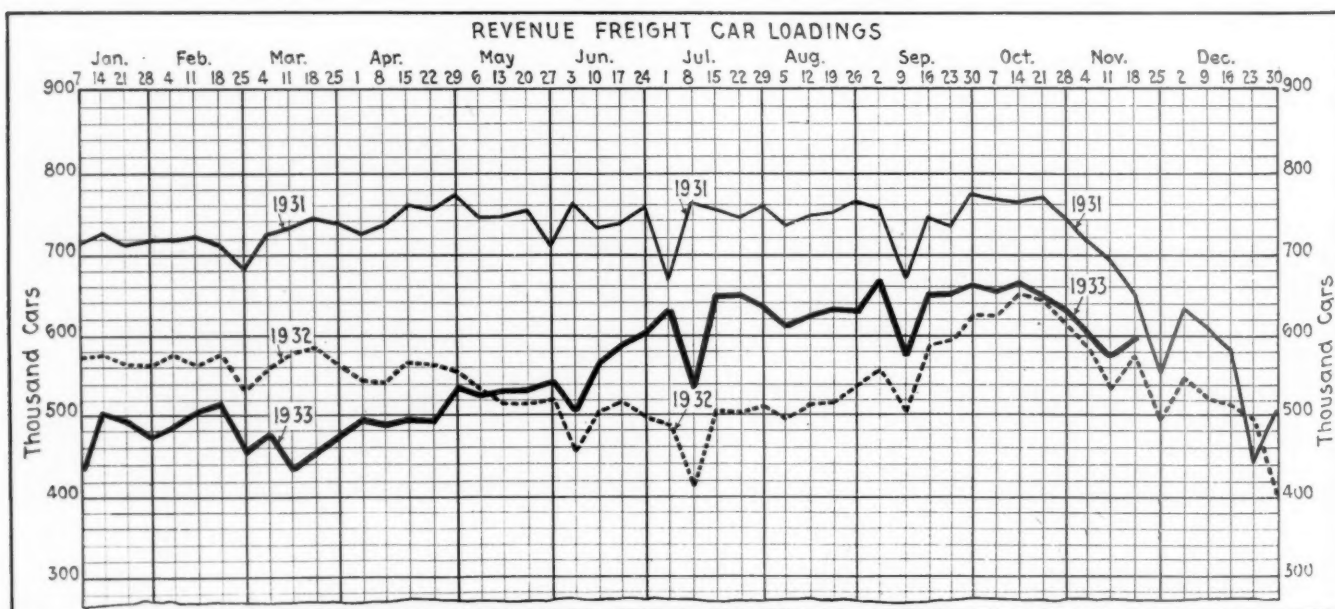
Car loadings in Canada for the week ended November 18 totaled 47,420. This was 22 cars less than the loading for the preceding week but an increase over last year's loadings of 1,470 cars, all commodities except grain recording increases.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
Nov. 18, 1933	47,420	18,754
Nov. 11, 1933	47,442	17,935
Nov. 4, 1933	50,688	19,329
Nov. 19, 1932	45,950	17,594
Cumulative Totals for Canada		
Nov. 18, 1933	673,366	38,650
Nov. 19, 1932	749,502	49,314
Nov. 14, 1931	785,827	70,678

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended November 18 totaled 599,289 cars, an increase of 21,613 cars as compared with the week before and of 26,666 cars as compared with the corresponding week of last year. As compared with 1931 it was a decrease of 54,214 cars. All commodity classifications except



Performance of Diesel Locomotives

Reasons why a Diesel locomotive of relatively small horsepower can outperform a steam locomotive in switching and transfer service

By A. H. Candee

Railway Engineer, Westinghouse Electric & Manufacturing Company

DIESEL locomotives of limited installed horsepower capacity can compete successfully with the heavier types of steam motive power which have considerably higher horsepower ratings, especially in heavy railroad switching and transfer duty, but the reasons for this are not generally understood. A comparison of the operating characteristics of these two types of locomotives, however, shows that a Diesel locomotive of considerably lower horsepower will outperform its steam competitor.

To make a true comparison of the operating characteristics of these two types of motive power, it is necessary to compare the complete duty cycles from start to stop. A direct comparison of the speed-tractive force curves often leads to erroneous conclusions concerning the service capacity of the Diesel unit. When the Diesel locomotive curve is plotted on the steam locomotive curve, it appears that the former is definitely inferior to the latter at all speeds above three or four miles an hour, and it is difficult to visualize faster operation by the Diesel even though actual service has demonstrated the fact repeatedly.

The curves shown in Fig. 1 are the actual performance curves of an 800-hp. 115-ton Diesel locomotive, and an 0-8-0 steam switcher, the latter having the dimensions shown in the table.

Loaded engine weight	221,900 lb.
Loaded tender weight	150,700 lb.
Maximum tractive force	51,000 lb.
Factor of adhesion	4.35
Rigid wheelbase	15 feet
Steam pressure	175 lb.
Driver diameter	51 in.
Cylinder size	22 in. x 28 in.

Consideration of these curves shows that the Diesel tractive force is superior to the steam below four miles an hour, but falls off considerably at the higher speeds. The steam locomotive develops 1220 horsepower, maximum, at the wheels while the corresponding Diesel output is only 657 horsepower.

The secret of the Diesel superiority lies in the high starting tractive force obtainable. Electric drive of the axles provides smooth and continuous application of torque, and reduces the tendency of wheels to slip, whereas the steam locomotive drive produces four distinct impulses at the wheels in each revolution. The minimum torque in a 90-degree rotation of the wheels is 29.3 per cent less than the maximum during this same period. We have, therefore, a pulsating torque varying from 70.7 per cent to 100 per cent (with an average of 89.5 per cent) of the maximum available. Obviously, the useful tractive force of the electrically driven wheels may be considerably higher (without exceeding the adhesive limit) than that of wheels driven by reciprocating engines through side rods. It has been demonstrated in service that this may be 20 to 30 per cent greater than the useful steam tractive force for equivalent weight on drivers.

The effect of high starting tractive force in the

acceleration of a train is shown in Fig. 2. Curves A, B, C and D are for different train weights, showing the accelerations as obtained by the Diesel locomotive with its relatively high initial tractive force, and as obtained by the steam locomotive. The Diesel locomotive has the advantage in each case, this superiority being evidenced by higher speeds up to 8 or 10 miles an hour, which is the point where the steam and Diesel acceleration curves cross. This, however, is only a part of the analysis. Area on each of these curves represents distance moved (miles per hour multiplied by time), and it may be noted from these charts that the area under the Diesel curve up to the crossing point is considerably greater than that under the steam curve. In other words, if the two equal trains started side by side, the Diesel train would be a considerable distance ahead of the steam train when they reached the same speed. If, then, the steam train is to catch up to the Diesel train, it must move faster than the Diesel to regain the area (distance) lost up to 8 or 10 miles per hour. The two locomotives continue until the area "b" is equal to the area "a." If both are then braked to a stop at the same rate, they

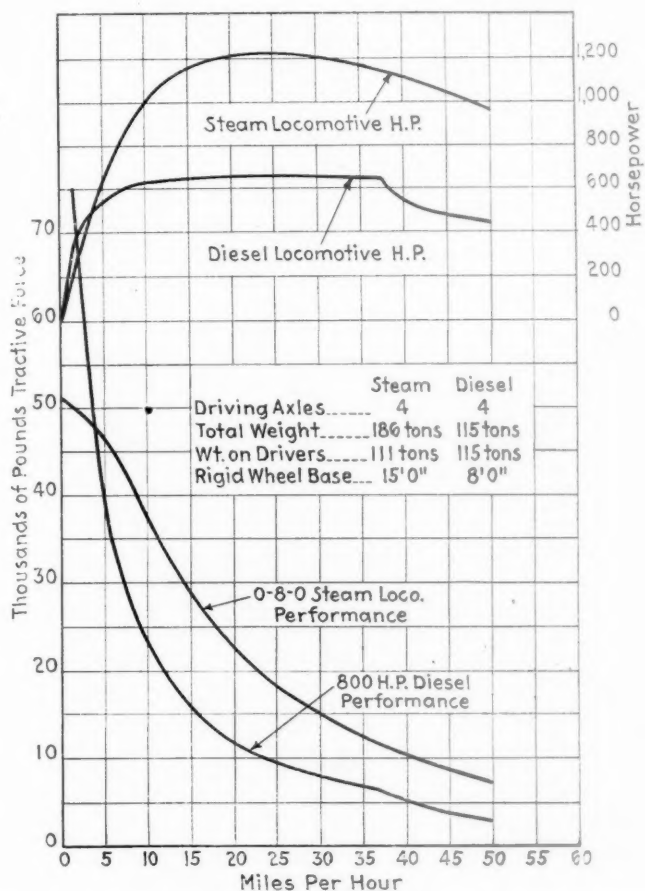


Fig. 1.—Relation of Tractive Force and Horsepower to Speed for Steam and Diesel Locomotives

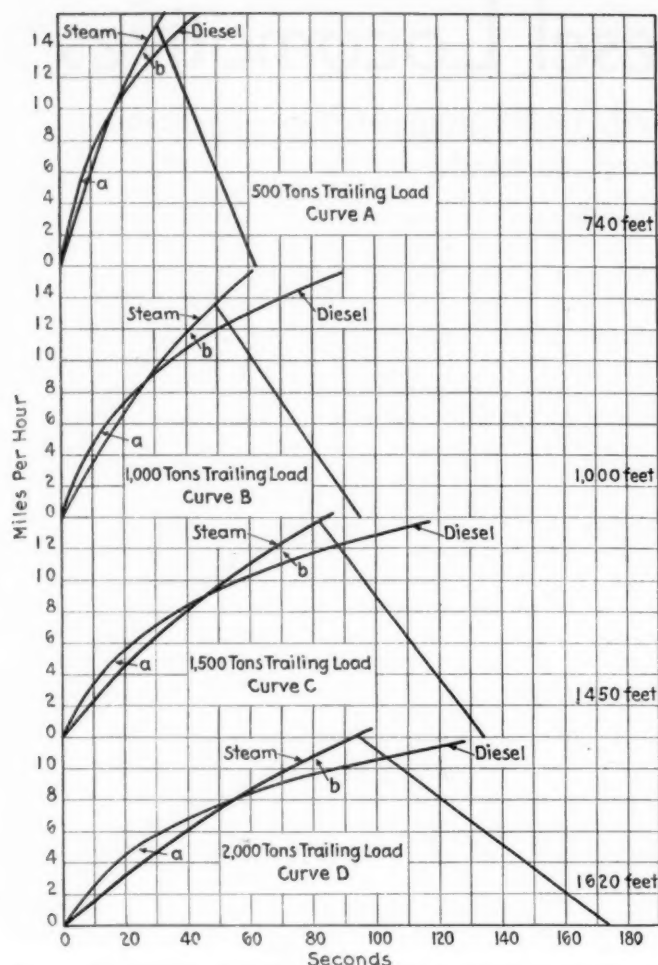


Fig. 2.—Comparison of Performances of an 0-8-0 Steam Locomotive and an 800-Hp. Diesel Locomotive with Various Train Weights on Level Tangent Track

will come to rest at the same point. Measuring the areas, it is found that the length of runs for which these locomotives give equal performance are:

500-ton trailing load, 740 feet; 1000-ton trailing load, 1000 feet; 1500-ton trailing load, 1450 feet; 2000-ton trailing load, 1620 feet; and that on all runs shorter than these, the Diesel is actually faster.

The average length of run in yard service as recorded for 21,750 movements on 12 different railroads is 582

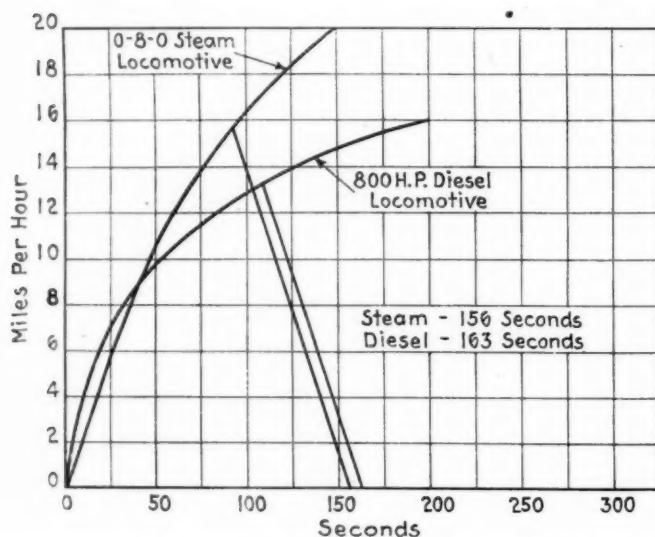


Fig. 3.—Average Speed-Time Curves in Transfer Service

feet, and the average trailing load is 306 tons. The curves indicate, therefore, that the 800 hp. Diesel locomotive can perform faster than the 0-8-0 steam locomotive in practically any normal yard operation.

Transfer operations entail longer runs than those in yard service. Where the length of movement exceeds those distances given in Fig. 2, the steam locomotive has a definite advantage over the Diesel. However, data compiled on transfer movements on various railroads in Chicago show that of 2,098 transfer runs, the average trailing load was 1,311 tons, and the average length of run was 1,986 feet. This service would mean a loss of approximately 7 seconds per run if the Diesel were used in place of the steam locomotive. This small loss of time is not a serious factor, because the time in transfer service per day as compared to the hours of yard service is usually small, and the faster yard operation by Diesels more than compensates for this loss. The speed-time curve for the average Chicago transfer movement is shown in Fig. 3.

Steam Locomotive Must Move Faster and Brake Longer

Analysis of the speed-time curves in Figs. 2 and 3 show some interesting things. The steam locomotive must, in every case, attain a higher speed than the Diesel to perform equal service, and then must be braked down from this higher speed. While the steam locomotive is braking from the higher speed to the Diesel locomotive speed, the latter may continue the application of power. This increased power application time (for equal performance) varies from 2.2 seconds on curve A (Fig. 2) to 9 seconds on curve D, or 7.1 per cent longer than the steam power application time on curve A to 9.6 per cent on curve D.

The ability of the Diesel locomotive to "kick" cars has often been underestimated. It may be noted from Fig. 2 that in each case the difference in attained speed is not more than 1.4 miles per hour, and that all are within the range of "kicking" speeds (8 to 12 m.p.h.).

Due to the difference in accelerating characteristics of the steam and the Diesel locomotive, these two types of motive power may not be compared on a horsepower basis. If curve D, (Fig. 2) is analyzed, it will be found that the average input during acceleration is 580.5 horsepower for the Diesel unit, and 765.0 horsepower for the steam motive power, these being the horsepowers developed at the wheels. These values correspond to 16.5 and 19.9 horsepower hours respectively. The higher input for steam is due to the greater kinetic energy stored in the moving train at the higher speed necessary for steam operation, which energy must be dissipated in brake shoes. From these values it is readily seen that the high horsepower rating of the steam locomotive is not useful because the average operating speed is low. It has been found by actual test that the heaviest class of yard service seldom requires more than 100 horsepower hours per hour.

The high starting tractive forces, which are responsible for the superior performance of the Diesel locomotive in switching and short transfer work, become of less importance as the length of run increases. Road hauls require nearly as much horsepower at the wheels of a Diesel locomotive as that developed by the steam locomotive used in this service. The relatively slow speeds attained by the low-powered Diesel locomotives on long runs have been responsible for the general misunderstanding of the capabilities of this type of motive power, which can actually perform faster switching and transfer work than a steam locomotive of much higher horsepower.

N. & W. Cuts Empty Mileage in Material Handling

Centralizing and co-ordinating motorized transport for stores and shops promote economies in large terminal operation



The Material Handling Unit at Portsmouth

BY centralizing the operation and control of all motorized equipment by the store and shop forces at Portsmouth, Ohio, the Norfolk & Western has not only eliminated considerable waste in material handling resulting from the incomplete utilization of equipment, but has at the same time increased the efficiency of this work and the serviceability of the power. Shop and stores forces throughout the extensive terminal district at Portsmouth are no longer inconvenienced by having to rely for aid only upon the equipment specially assigned to their shop or department when equipment assigned elsewhere is not in use, but can depend upon a system of material handling adapted to all requirements, while the management is assured a maximum return from a minimum investment in plant.

Pool Equipment

Prior to March, 1932, according to Mr. Wisby, tool-room foreman, Portsmouth, the shop trucking system at Portsmouth was arranged so that each departmental foreman was assigned a certain number of trucks which were used only in that department. Last year a study of the trucking system disclosed considerable unnecessary movement. The trucks were not being used to the best advantage. Often two trucks were traveling in the same direction with small loads which could have been handled by one. For example, a roundhouse truck, in making a trip to the car department for waste rolls, moved with no load and, along the way, passed a car-department truck on its way to the oil-house for barrels of oil. Since the oil-house is located near the roundhouse, one truck could have hauled both loads, at a considerable saving in time and expense. By centralizing the trucking, it was possible to correct this fault and to use the trucks to better advantage.

A point located just west of the machine shop was selected for headquarters of the new centralized trucking system. At this location there is ample room for storing 60 or more trailers used in the trucking work. These trailers are of numerous sizes and designs. There are six or more of the dump body trailers, while others are equipped with bolsters for handling exceptionally long material. Large trailers for handling superheater units and special car retarder material are also part of the shop transportation equipment. This location is also within calling distance of the motor-car repair department, with the result that, if anything should go wrong with one of the trucks, a mechanic can be called with little delay or an extra truck can be put in service.

The question of how many trucks would be required to handle the interdepartmental work efficiently was determined and assignments were made. One gasoline dump truck is assigned exclusively for moving material in and about the two roundhouses. One electric crane truck designed for heavy lifting is assigned to repair

locomotives at the machine shop. The back shop is assigned one electric crane truck for lifting where overhead crane service is not available, while the store department has one electric crane truck for its work. These are the only trucks that do not come under the centralized trucking system.

Centralized Operation

A dispatcher was selected and five gasoline trucks assigned to him, while metal boxes were placed at each of 12 selected points. Each box has two flags which can be raised and lowered, one marked East and the other West. Each box is divided into two parts, one for all tickets for material moving east, the other for west-bound tickets. The 12 points selected are as follows: Car-department oil house, fabricating shop, car-department storehouse, car-department air room, car-department main storehouse, air room, arch-brick house and the new roundhouse machine shop.

Two of the gasoline trucks are assigned to through hauling. At the beginning of each working day one truck proceeds to the east end of the terminal or to Box 12, while the second through truck moves to the extreme west end of the terminal, or to Box 1. From these points they start their continuous traveling back and forth, picking up and dropping off trailer loads of material as they move from the extreme east to the extreme west end of the terminal. The dispatcher has a phone in his office and a large blue-print showing the layout of the terminal and the exact location of each of the 12 boxes, which are within 100 ft. of the phones. He also has in his office a large routing board on which the stations are ruled off and numbered, each number having directly under it two hooks, one lettered East and the other West. On these hooks are hung any phone orders received. For example, if station No. 7 calls for a trailer, the dispatcher makes out a memorandum to this effect and hangs this memo on the east hook of station No. 7. All phone calls are also posted on the routing board. Most of the calls are for trailers or for some rush order because, with these exceptions, the trucking is carried on by means of the East and West flags on the boxes at the 12 stations.

If the foreman in the back shop has a trailer load of boiler mounting to go to the air room or station No. 10, he fills out a form, MP-108, stating that a trailer loaded with boiler mounting is to be moved from station No. 7 to station No. 10. Since station No. 10 is east of station No. 7, he will place the order in the East side of Box 7 and raise the flag marked East. Thus, the passing truck drivers can see at a glance when there is a load to be moved in the direction they are going. On seeing the

East flag on station No. 7, the driver stops, takes out the MP-108 to see where the load is to be delivered, lowers the flag, hooks onto the trailer and delivers it to station No. 10. In like manner, he picks up and drops off all trailers moving east.

The third of the five trucks in the system is used for rush orders and for material to be moved off the regular routes. This truck also gathers empty trailers so that a supply will always be at the disposal of the dispatcher. The other two remaining trucks are used for storehouse delivery service. At certain periods of the day, there are heavy demands for material from the storehouse. During these periods one truck handles all material tickets for the pipe shop and everything east, which includes the two roundhouses, while the second truck takes care of material wanted by the remaining shops. After the heavy demand on material from the storehouse is met, only one truck is needed for the storehouse delivery, and the second truck is then used for handling interdepartmental work.

Since the dispatcher's office is centrally located, the through trucks must pass by the office on their trips back and forth. Thus, they can deliver to the dispatcher all tickets for material that they have moved and also any orders for storehouse material collected in the boxes along the route. These the dispatcher gives to the driver handling the storehouse delivery.

A second man is employed to assist the dispatcher. He looks after all trailers and sees that, after they have been delivered to their destination, there is no delay in their unloading, for it is only by keeping the trailers unloaded that the system will operate efficiently. He also supervises the truck drivers and sees that they check all station boxes as they move along the right of way from east to west. He sees that all material is safely loaded and contacts all department foremen, calling their attention to any unsafe practice of loading that he may observe in their department, thus avoiding serious accidents. The system has been in operation for the last 12 months.

Progress in the Safe Handling of Explosives

IN CONNECTION with the observance of the centenary of the birthday of Alfred Bernard Nobel, inventor of dynamite, who was born October 21, 1833, the Institute of Makers of Explosives (New York City) has issued a review of transportation as related to safety which has been prepared by Col. B. W. Dunn, chief inspector of the Bureau of Explosives, who, as is well known, has been the leading spirit in this element of safety work in the railroad field from its inception. He at first was "borrowed" from the War Department by the American Railway Association, which established the Bureau, but later he resigned from the army and devoted his time wholly to this work.

The A. R. A. first took action in April, 1905. Up to that time, the national importance of the problem had been ignored, and disastrous explosions had occurred on railroads. There was no uniform set of rules to define dangerous articles, and only the most brief and crude regulations. The only definite point of contact between the carriers and the shippers was the carriers' tariff, and the rules contained therein. There was some thought of seeking radical legislation from Congress, but nothing useful could be done in that direction. Finally, the

carriers agreed to establish a general inspection agency, and it was called the Bureau for the Safe Transportation of Explosives and Other Dangerous Articles, now generally abbreviated to "Bureau of Explosives." It began its operations in June, 1907. The first thing to be done was to bring railroad officers and the makers of explosives together for a conference. This proved to be long, and somewhat complicated, but in the end, says Colonel Dunn, it was amazingly successful.

Continuing, Colonel Dunn says, in part: The present regulations of the Interstate Commerce Commission are federal law, with severe penalties provided for violations; but they are unique among federal laws in that their enforcement does not depend on these available penalties. They are unique also in their origin. They were not conceived in the mind of a legislator. They represent real democracy, for they were conceived in the minds of the people who obey them. The carriers suggested to the manufacturers:

1. That they assume in equal degree responsibility to the public for the safe transportation of explosives.

2. That they agree as soon as possible on a reasonable set of rules.

3. That after promulgation of the rules shippers and carriers co-operate with the Bureau of Explosives in every way possible to secure uniform enforcement.

This program gave to the manufacturers a partnership status in a work of great importance to them. It appealed to their public spirit. At that time, 1907, antagonism between carriers and shippers was the rule rather than the exception. The program suggested a new spirit in dealing with them. Also the officers of the Bureau of Explosives, who would represent the carriers in the proposed co-operation, had (in their work for the government) been associated with many of these manufacturers for years.

After a prolonged discussion the manufacturers agreed to give inspectors of the Bureau free access to their plants and to allow samples of their products to be examined for safe transportation purposes by the chemical laboratory of the Bureau. And, finally, they agreed to increase at once the thickness of lumber and the strength of their dynamite boxes, which meant a large annual increase in shipping costs. In accepting the program the manufacturers accepted their share of the enforcement duties, with the result that the managers of these plants became and have continued to be the best insurance for enforcement of the rules.

In the preparation of rules co-operation was the essential foundation for the solution of the problem, but it was not sufficient in itself. Enforcement of the rules involved too many men and too many conflicting interests. Traffic officers did not like rules that meant refusal of shipments, and some shippers were more than willing to shirk the duty of using more expensive containers. It soon became evident that we needed reinforcement of the railroad rules, but it was necessary that they should remain elastic and subject to change by the co-operative efforts of carriers and shippers, to meet new or changed conditions; and with the approval of the Interstate Commerce Commission the carriers and shippers secured federal legislation, and the Commission approved and promulgated the rules that the Bureau of Explosives and the shippers had prepared. The co-operative partnership of carriers and shippers was joined now by the third and dominating partner, the Interstate Commerce Commission.

Under terms of the law the Interstate Commerce Commission could disregard all this co-operation between carriers and shippers and prescribe its rules according to the old arbitrary method. The Commission has never

failed, however, to show its desire to utilize the recommendations of shippers and carriers to assist it in meeting its own responsibility under the law.

The plan of safely controlling the shipping and handling of dynamite and other explosives by enforcement of suitable regulations, with the co-operation of all interested parties, has been fully justified, as is evident by the record since 1907. In that year there were 66 explosions in transportation, resulting in 101 deaths and 62 injuries. Dynamite played an important part in these

explosions. Not since 1921 has there been an explosion involving dynamite or other high explosives on the rails of the carriers of the United States or Canada.

The careful preparation of explosive packages, secure blocking and bracing of these packages in cars and careful handling by the railroads have all combined to accomplish the desired result, which is safety in the transportation of these dangerous commodities. In normal times the railroads of the United States and Canada carry more than 500,000,000 pounds of explosives yearly.

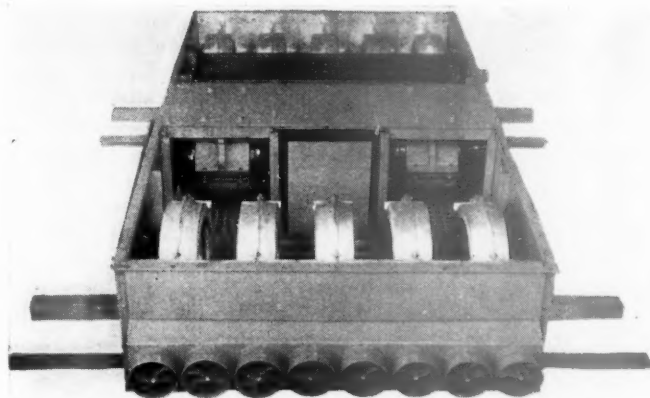
New Haven Club Cars Equipped with Air Conditioning

Airtrol system, with heating, humidification and distribution units at center of car, provides both for winter and summer operation

THREE club cars, operating in private-car club service on the New York, New Haven & Hartford between New York and Stamford, Conn., have recently been equipped with the Airtrol system of air conditioning using ice as the cooling medium. This system, marketed by the Rails Company, New York, not only provides for complete air conditioning, both winter and summer, with provisions for humidification in winter, but also embodies a method of air distribution and recirculation of car air which eliminates uncomfortable drafts.

The system employed in these cars consists primarily of two self-contained units—one in the ceiling of the car, at the center, which contains a humidifier, fin-coil radiator, air filter and motor-driven fans having centrifugal type impellers, and a second unit underneath the car body containing the ice storage bins and cold-water circulating pump.

The conditioning unit in the car ceiling takes both the fresh air entering through ducts and clerestory open-



The Ceiling Unit Contains the Fans, Humidifier and Outlet Nozzles



Interior of New Haven Club Car Showing Airtrol Air-Conditioning Unit Built Into the Ceiling

ings and recirculated air from the car interior and passes the mixed air through the humidifier and the filter to the fans which discharge the conditioned air through "rifled" nozzles at the rate of 2,350 cu. ft. per min. Provision is made for 50 per cent fresh air. The nozzles have adjustable vanes which not only impart a swirling motion to the discharged air, but also control its direction. The fans are driven by two 1/4-hp. motors.

The cold-water circulating unit and ice storage bin beneath the car provide for the storage of 1,000 lb. of ice (an amount determined by the length of the run) and contain a circulating pump which is driven by a 1/2-hp. motor. The cooling water is drawn from the ice storage bin by the pump and after being circulated through the cooling coils in the ceiling unit is returned to the storage bin and sprayed over the ice. In this installation the heat-transfer coils in the Airtrol unit are piped both for cooling and heating. During the winter season a change-over is made by suitable valves which disconnect the cooling system and connect the steam-heating system to the heat-transfer coils. When used as a heating system the humidifier is placed in operation and the heating system supplies moisture to the fin humidifying surfaces through which the fresh and recirculated air passes to the heat-transfer coils and circu-

lating fan in the same manner as for cooling in summer.

Heating tests conducted on an Airtrol-equipped car as compared with a similar type car equipped with the conventional type radiator heating system indicated an appreciable economy both in the heating-up period and also in maintaining proper temperature within the car after it had been heated.

The air conditioning equipment of these New Haven club cars is somewhat similar to the bulkhead units which were described in greater detail in an article in connection with the New Haven dining cars which appeared in the September 10, 1932, *Railway Age*.

Report on Derailment at Anacostia River

THE Interstate Commerce Commission has issued the report of W. P. Borland, director of the Bureau of Safety, on the derailment of southbound passenger train No. 147 on the Pennsylvania on the morning of August 24 last at the bridge over Anacostia River, about four miles north of Washington, as reported in the *Railway Age* of September 2, page 351.

The bridge failed because of the weakening of a pier in the middle of the stream following serious scouring of the river bed by heavy rains; and the engineman and fireman were killed; 20 persons were injured.

The road at this point was on an embankment about 10 ft. high and the bridge, four spans, deck plate-girder, was laid on a 46-deg. skew. It was built in 1904; total length 262 ft.; openings for the stream from 41 ft. to 45 ft. wide. The height of the rail above mean low water was 18.77 ft.; and its height above the gravel stratum on which the center pier rested was 28.8 ft. This bridge is about six miles from the point where the river empties into the Potomac. The territory drained by the stream above the bridge embraces about 133 square miles and, under normal conditions, the depth of the water at the bridge was three or four feet at low tide. The tide measures about 3 ft. The rainfall during the preceding 24 hours had been about 6.39 in.

In 1928, as recorded by the United States Engineers, the channel of the river had been partly filled in between the center pier and the north pier; but on the sixth day after this disaster the bottom of the river had been scoured to a depth of 15 ft. below mean low water, or sufficiently to undermine the center pier to a depth of at least 3 ft. The south pier had also been partly undermined.

The stratum of gravel had been considered a sufficient foundation for the piers and no piling had been driven. Soundings made by United States Engineers in 1928 indicated that there had been some scouring between the center and south piers; but because of the lack of prior under-water examination it is impossible to say whether all of the undermining causing this disaster was done by this particular storm, or at some previous time.

In conclusion the report says: "Inspections and soundings to discover evidence of undermining should be made immediately after the occurrence of flood conditions, before the waters have had a chance to fill in the scouring which may have been created. There have been previous heavy rains in this territory which might well have resulted in scourings, and careful inspection and the taking of soundings immediately following such flood conditions might have developed necessity for ac-

tion. . . . It is recommended that such inspections and soundings be made in the future."

It appears that at the time of the derailment the depth of water passing under the bridge may have been as much as 26 or 27 ft. Five days after the derailment it was found that the water 500 ft. above the bridge and also 500 ft. below had a depth at mean low water of only 4 ft.; and the depth increased gradually toward the bridge until it was 16 ft. deep at that point.

Report on Hargis Bridge Disaster

THE Interstate Commerce Commission has made public the report of W. P. Borland, director of the Bureau of Safety, on the derailment of eastbound passenger train No. 4 of the Southern Pacific, at Hargis, N. M., at 4:20 a. m. on August 29, by the failure of a high bridge, when eight passengers and three employees were killed, and 46 persons were injured. This derailment was briefly reported in the *Railway Age* of September 2. The train was made up of 11 cars, hauled by locomotive 4388, and was moving at about 20 miles an hour. The bridge, 50 ft. or more in height above Blue Water Creek, had been weakened by the undermining of the east abutment, so that the locomotive fell through when it had nearly completed the crossing. The bridge consisted of a central span of 90 ft. and two end spans of 60 ft. each. The east abutment rested partly on concrete piles driven into a sloping bank. This bank had been washed away many feet by a flood of about 26 ft. in depth, in a creek bed normally dry.

A new highway had been built in 1931 parallel to the railroad on the upstream side, the bridge for this highway being about 150 ft. from the railroad.

The report says that three principal elements contributed to the failure of the bridge: 1, very heavy rains; 2, the position of the highway bridge, which increased the velocity of the current and probably directed it against the railroad embankment; and, 3, the fact that the railroad embankment had not been protected against erosion.

The bridge, built in 1914, was of substantial construction and had withstood high waters several times. The rains and flood on the night of August 28 were of unusual intensity causing a flood stage which was perhaps unprecedented.

The evidence of "engineers who testified is convincing that the failure of the bridge could have been guarded against by rip rap" or other similar protective devices. Had a comprehensive survey been made by competent engineers, after the construction of the highway bridge, the need would have been shown. Furthermore, rains earlier in the month of August had produced some erosion on the east bank, clearly indicating the need for protection. Local residents had seen this, and recognized the possibility of danger, but the railroad company had not made sufficiently frequent or thorough inspections, * * * and had failed in the performance of its duty to the traveling public.

In conclusion, says the report, this investigation indicates the need for closer co-operation between the engineers of the railroad and the state highway department; and the need that railroad engineers should keep currently informed in regard to changes which may impair safety.

Heat Treatment Changes the Burning Qualities of Pulverized Coal

Thermolizing process produces a non-flammable fuel, free from tendency toward spontaneous heating, which burns with a short, high-temperature flame

AS the result of overheating the dryer when conducting some experiments in drying and pulverizing coal, Charles M. Buck discovered that coal heated to about 400 deg. F. undergoes a transformation of physical and chemical characteristics which materially improves its pulverizability; greatly reduces, if not entirely eliminates, both its flammability and its tendency to spontaneous combustion; completely removes its tendency to cake in storage, and causes it to burn with greater intensity when raised to ignition temperature. On the basis of this accidental discovery the process of heating-treating crushed coal before pulverizing known as Thermolizing has been developed by the Thermolized Coal Corporation, 120 Oxford Place, Plainfield, N. J.

The character of the physical operation involved in Thermolizing is essentially the same as that involved in drying coal prior to its pulverization. The coal is first crushed and then fed into a rotary oven. During its passage through the oven it is brought up to a temperature of about 400 to 450 deg. F. The exact value of this temperature varies somewhat, depending on the analysis of the coal.

This heating process first evaporates the moisture in the coal and then raises its temperature through the endothermic range within which a quantity of heat is absorbed by the coal without a corresponding temperature increase. During this operation a considerable percentage of the methane in the occluded gases is driven off.

The Thermolizing oven and its operation differ from that of the corresponding drying oven in two respects. First, it is maintained at a temperature of from 750 deg. F. to 1,000 deg. F. in order that the coal may be heated through the normally time-consuming endothermic range up to 400 to 450 deg. F. in from 12 to 15 min. The other is the passage of the neutral waste gases from the furnace through the oven where they pick up the methane from the occluded gases and replace it with an approximately equal volume of nitrogen.

During the heating process the crushed coal has undergone a physical change which is indicated by an expansion in volume of approximately 10 per cent. That this change is molecular rather than merely mechanical is indicated by the fact that after pulverization the coal still retains this increase in volume when compared with pulverized raw coal of the same original analysis. The structure of the Thermolized crushed coal is more friable than that of the raw coal and the time required for pulverizing to 60-200 mesh is reduced by one third.

The non-flammable characteristic of the Thermolized pulverized coal is apparently accounted for by the change in the analysis of the occluded gases. The table shows that for one sample the methane was reduced from 27.6 per cent of occluded gases in the raw coal to 8.7 per cent in the Thermolized coal with an increase in nitrogen corresponding approximately to the decrease in

methane. It is believed to be the presence of methane in flammable quantities in the occluded gases which leads to the flame propagation that gives pulverized bituminous coal its dangerous explosive properties. The percentage of methane remaining in the occluded gases

Change in Analysis of Occluded Gases Effected by Thermolizing

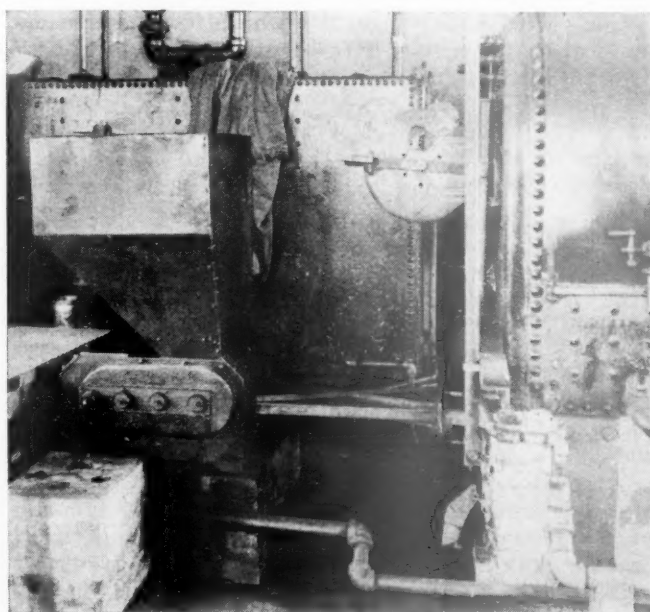
	Raw	Thermolized
Volume gas evolved per gram (60 mesh coal), c.c....	1.25	1.25
CO ₂ per cent in gas	0.0	0.7
C ₂ per cent	0.6	0.8
CO per cent	1.8	0.6
CH ₄ per cent	27.6	8.7
N ₂ per cent.....	70.0	89.2

following the Thermolizing process is well below the limit of one part to six parts of nitrogen by volume necessary for flame propagation.

Combustion

Because of its non-flammable quality it is possible to introduce the entire volume of air required for the combustion of Thermolized coal into the furnace mixed with the fuel. Fired in this way Thermolized coal has been burned at a rate of 25 lb. per hr. per cu. ft. of furnace volume. This compares with a rate of 2 lb. per hr. per cu. ft. of furnace volume in the case of raw pulverized coal in stationary boiler installations.

The coal burns with a short, intensely hot flame free from smoke. Based on the proportion of the furnace volume actually filled with flame when coal was being



The Rear End of the Laboratory Boiler Showing the Blower and Fuel-Metering Equipment Connected to the Firebox by a Rectangular Conduit

burned at the rate of 25 lb. per hr. per cu. ft. of furnace volume, the rate of combustion within the combustion zone has been carefully calculated as being 100 lb. per hr. per cu. ft. The rate of combustion of the fuel per unit of furnace volume, therefore, depends upon the extent to which the combustion zone can be made to fill the furnace volume.

The laboratory in which the Thermolizing process has been developed is equipped with a small locomotive-type boiler, the dimensions of which are shown in the table.

Dimensions of the Laboratory Boiler

Diameter of shell	36 in.
Number and diameter of tubes.....	74 — 3 in.
Length of tubes	8 ft. 6½ in.
Firebox:	
Length inside at mud ring.....	3 ft. 6 in.
Width inside at mud ring.....	2 ft. 6 in.
Height at center of crown.....	3 ft. 2½ in.
Net volume	25 cu. ft.

This is equipped with a slag pan and a combined blower and coal-feeding device which delivers a coal and air mixture, the proportions of which can be maintained constant, irrespective of the rate at which the fuel is being fed to the firebox. This is delivered into the firebox through a rectangular opening 18 in. wide by 1½ in. high under the rear of the mud ring. A fire-brick arch protects the lower part of the tube sheet and is carried back into the firebox at the top as in an oil-burning firebox.

With complete control of the air-fuel mixture an unusually high combustion efficiency can be attained. The CO₂ in the furnace gases seldom drops below 14 per cent and has been consistently maintained between 15 and 16 per cent, with occasional readings as high as 17 and 18 per cent. Orsat readings indicate no CO and the oxygen readings indicate from 20 to 30 per cent excess air. Optical pyrometer observations indicate flame temperatures of around 2,900 deg. F. The coal is easily ignited in a cold furnace by a small wood fire.

During the firing-up period before steam from the boiler was available for stack draft, the open firebox door has been observed to permit the pulverized coal to be blown out into the laboratory, a condition which would have been dangerous with raw pulverized coal. The flame never reached beyond the firebox door.

Coals of a wide range of chemical composition and physical characteristics have been burned in the laboratory furnace. In no case has there been any tendency toward the accumulation of slag on the tube sheet or other firebox surfaces. The small pendants of ash which adhere to crown-bolt heads and other projections on the firebox sheets never grow beyond a limited maximum size and crumble at a touch.

Changes Effectuated by Thermolizing

Exact knowledge is not yet available to account for all of the results produced by the Thermolizing process. Investigations which have been made in the study of the distillation processes have definitely established the fact that when coal is heated a quantity of heat is absorbed without a continuing proportionate rise in temperature somewhere within a temperature range terminating at from 400 to 450 deg. F. The characteristics of the temperature lag depend on the rate at which heat is applied. S. W. Parr of the University of Illinois in discussing this phenomenon in a paper on Low Temperature Carburizing of Coal* said: "The resultant heat effect of these reactions over this range of tempera-

ture is endothermic and is substantially the same as the absorption of heat that occurs below 100 deg. C. (212 deg. F.) in the vaporization of the free water content of the coal."

Apparently the change in the molecular structure of the coal indicated by its increase in volume and other as yet undetermined chemical changes account for the absorption of this latent heat. When raw coal is burned this same process of heat absorption must take place within the furnace. The fact that this time-consuming process is completed before Thermolized fuel is introduced into the furnace apparently accounts for the rapid ignition and intense combustion. Since whatever reactions may be caused by heat up to 400 to 450 deg. F. have taken place within the Thermolizing oven, the coal is afterwards apparently entirely stable at any temperatures below this point—a condition which may account for the apparent absence of any tendency toward spontaneous combustion.

Thermolized Coal as a Locomotive Fuel

Because of its short flame which, in the locomotive type firebox installed in the laboratory, has apparently prevented the accumulation of honeycomb on the tube sheet. Thermolized coal promises to overcome one of the greatest inherent difficulties of burning pulverized fuel in a locomotive firebox. The amount of Thermolized coal which can be burned per cubic foot of locomotive firebox volume apparently depends upon the maximum percentage of firebox volume which can be utilized in active combustion, without causing molten ash to impinge on the tube sheet and within which the firebox temperatures will not exceed the melting temperature of the refractory arch.

In the laboratory installation fuel is delivered to the firebox over only 60 per cent of its width. It is probable that this could be considerably increased, thus increasing the combustion rate per unit of volume without bringing the flame appreciably closer to the tube sheet than is at present the case, when it seldom extends beyond the tip of the arch. The non-flammable quality of the fuel and its freedom from spontaneous heating and caking in storage considerably simplify the problems of preparation, storage and distribution as compared with those which have been encountered with raw pulverized coal for locomotive service.

Studies of the cost of the Thermolizing process indicate that the Thermolized pulverized fuel can be prepared for an amount no greater than that required for the complete preparation of raw pulverized coal. More heat is required for Thermolizing than for the customary drying process, but this is at least offset by the effect of the greater friability of the Thermolized crushed coal, which reduces the time and cost of the pulverizing process by as much as one third.

THE CHICAGO & NORTH WESTERN, beginning on December 1, placed on sale in its Chicago suburban service a round-trip shoppers' ticket which entitles the passenger to use a bus or street car from and to its Chicago terminal without the payment of fare on the street vehicles. Coupons for buses or street cars will be given with all shoppers' tickets where the round-trip rate is 45 cents or more and when they are sold for use after 8 a.m. This arrangement is the result of the success of a similar plan tried in July, August and September, when the shoppers' ticket was accompanied by a coupon which entitled the passenger to a free ride on a bus or street car between the terminal and A Century of Progress exposition. During these months the shoppers' tickets found constantly increasing favor.

* Presented before the second International Congress on Bituminous Coal, Pittsburgh, Pa., November 19-24, 1928.

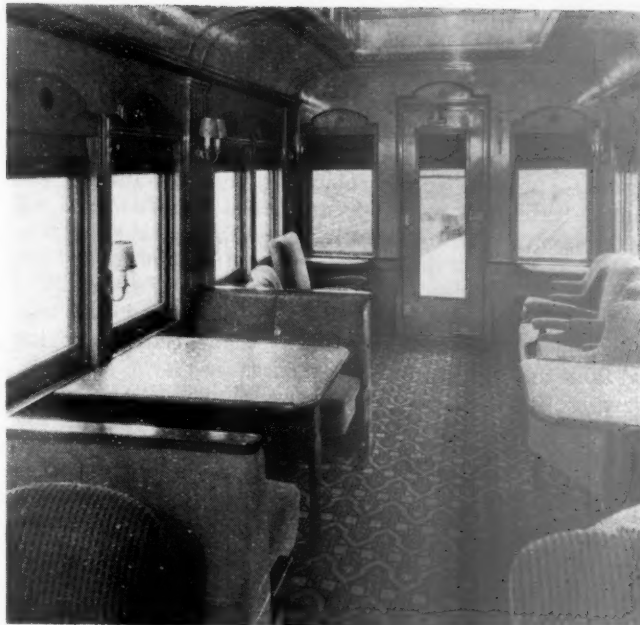
New Car an Aid in Soliciting Group Travel

A RESTAURANT-SLEEPING-OBSERVATION car, which is of particular value in soliciting party movements because of its private car features, has recently been placed in service on several railroads by the Pullman Company. The newest of these cars, those operating over the Chicago, Rock Island & Pacific and the Chicago, Burlington & Quincy between Minneapolis, Minn., and St. Louis, Mo., and on the former road between Minneapolis and Dallas, Tex., contain eight open sections, a kitchen, a dining section and an observation-lounge. The cars are especially attractive to private parties touring the country or traveling to conventions, etc., for when the car is parked at destination, the party can have complete hotel facilities at all times. The possibilities of the cars in connection with group travel are even greater in view of the proposal now under consideration by the railroads to reduce the minimum transportation requirement from 20 fares to 15 fares. Since the dining room of the car has a capacity for 14 persons at one sitting and can handle as many as 100 persons at a meal, the car can also be used to provide dining and lounge facilities for large private parties occupying several cars.

Besides being valuable in encouraging private party movements, the cars afford economy on lines whose traffic cannot support a dining car or an observation car. At the present time, 38 restaurant-sleeping cars containing either open sections, compartments or rooms, in addition to several which have combined seat space and restaurant facilities, are in operation on nine railroads under an arrangement whereby the Pullman Company operates the restaurant and sleeping facilities. The points between which and the railroads on which these restaurant sleeping cars are operated are as follows:

Points Operated	Railroad	No. of Cars
Minneapolis and St. Louis.....	Chicago, Rock Island & Pacific	3
Minneapolis and Dallas.....	Chicago, Rock Island & Pacific	4
Minneapolis and Kansas City, Mo.	Chicago Great Western....	4
Chicago and Rochester, Minn..	Chicago Great Western....	2
Chicago and Hornell, N. Y....	Erie	2
Chicago and Jersey City.....	Erie	3
Jersey City and Cleveland.....	Erie	2
Jersey City and Youngstown..	Erie	2
Mexico City, D. F., and Guadala-	National Railways of Mex-	
lajara, Jal.	ico	2
Los Angeles and San Francisco.	Southern Pacific	2
New Orleans and Houston....	Southern Pacific	2
Minneapolis and St. Louis.....	Wabash and Minneapolis & St. Louis	2
Nogales, Son., and Guadalajara.	Southern Pacific of Mexico	4
Chicago and St. Louis.....	Chicago & Eastern Illinois.	2
Chicago and Cincinnati.....	Cleveland, Cincinnati, Chicago & St. Louis.....	2

The seven cars which have been assigned to the Chicago, Rock Island & Pacific are eight-section restaurant-observation-lounge cars. They are 78 ft. 3½ in. long between the body end sills and are designed for both rear and mid-train operation. An outstanding feature of the cars is the fact that they are so equipped that either ice or mechanical air cooling can be added at any time if desired. The heating of the car is thermostatically controlled, warm air being blown into the car through an overhead duct system. Proper ventilation is

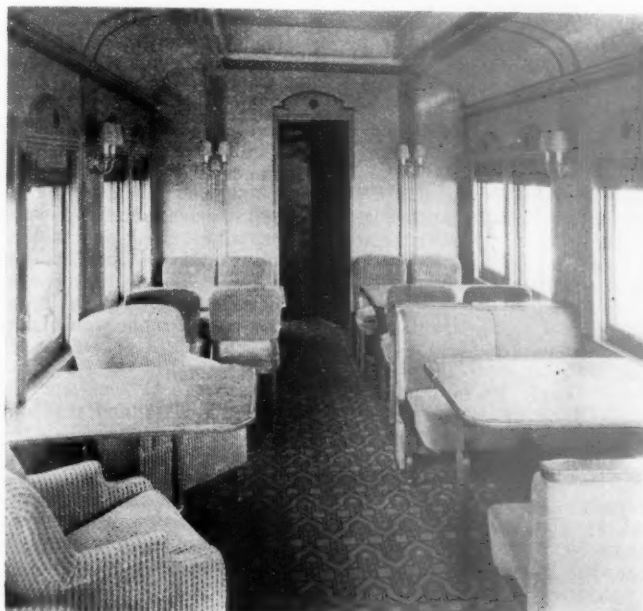


The Observation Lounge

insured at all times, the system including, besides the warm air blower, exhaust ventilators that function when the car is in motion, an exhaust fan for use when the car is standing and a Mudge blower and exhaust fan in the kitchen to expel odors before they enter other parts of the car.

At one end of the car is a women's lavatory, covered with rubber floor tiling and containing a dresser shelf, chair and mirror, a dental lavatory, a water cooler, two wash stands and an adjoining salon containing the hopper. Next to this lavatory are the eight standard sections with permanent head boards. At the other end of the space occupied by the sections is the men's lavatory. It also is floored with rubber tiling and contains a large leather upholstered seat, a water cooler, a dental lavatory, three wash stands and an adjoining salon in which the hopper is located. Adjacent to the men's lavatory is the kitchen and linen and silver locker.

Next to the kitchen is the dining-lounge. It con-



The Dining Facilities Seat 14 Persons

tains two stationary and two removable tables, which have a total capacity for 14 persons. One removable table is part of a booth. On both sides of the table are permanent bench-type seats, the rear of which extend to the floor to suggest an enclosure. These upholstered benches are divided and the two seats in each can be raised to provide ample room for persons entering the booth. When not used for meals the booth is used for card playing, etc. The other removable table is normally an end table but is so designed that it can be extended into a dining table for two persons. The chairs for the two stationary tables are the dining car type with upholstered seats and backs while those with the end table are overstuffed arm chairs.

At the rear or enclosed observation end of the car is 7 ft. 8½ in. of space, which includes a heavily upholstered settee with an arm rest dividing it into two parts, four upholstered arm chairs and two console tables on which are decorative lamps. The dining-lounge is illuminated by 16 shaded wall lamps and 4 table lamps and by a cluster of lamps on the ceiling.

Out-of-Pocket Cost As a Factor in Rate-Making

THE Interstate Commerce Commission has made public a paper on "Out-of-Pocket Cost As a Factor in Determining Freight Rates," by M. O. Lorenz and B. T. Elmore of its Bureau of Statistics, as having been compiled by the bureau but not considered or adopted by the commission. It includes chapters on the theory of out-of-pocket cost of railroad service, a review of references to out-of-pocket cost in the opinions of the Interstate Commerce Commission, a discussion of statistical problems involved in computing out-of-pocket costs, and appendices on relation of expenses to volume of traffic and out-of-pocket cost tables for box car traffic in carloads. The preliminary statement on the theory of out-of-pocket cost follows:

The term "out-of-pocket cost" obviously suggests that certain costs of providing railroad services are directly or immediately connected with a particular service while other costs are only indirectly related to it. The implication is that if a rate covers something more than the out-of-pocket cost attributable to some particular service, the railway company is not losing anything on that service, it being assumed that the other than out-of-pocket expenses will go on even if the service in question is entirely omitted. Out-of-pocket expenses are sometimes thought of as the added expense caused by added traffic.

But as soon as one attempts to enumerate the kinds of expense included in the out-of-pocket group, the indefiniteness of the concept becomes apparent. In the first place, what is a particular service? Do we mean the transportation of one particular carload of coal, all the coal in one trainload of coal, or all the coal carried by one railway in a year? The wages of the crew of a particular train might be unaffected by adding one more car of coal to the train, in which case train wages would not be out-of-pocket for the added car of coal. But if an entire train of coal were added to the traffic the wages of the crew would clearly be in the out-of-pocket group. If we have in mind all of the coal carried in a year, the wear and tear on the track would be an appreciable out-of-pocket cost.

To put the preceding thought in another way, the concept may be said to be indefinite because some expenses, while apparently not immediately connected with a given amount of added traffic, are, nevertheless, over a period of time proportionate to the volume of traffic. Thus, the repairs of a locomotive immediately caused by a given train run might be of a minor character, but after 100,000 miles had been run there would inevitably be heavy repairs, and hence one would say that such repairs should be included in the out-of-pocket group in a broad view of the matter.

In a still broader view, one might include part of the interest on investment among out-of-pocket items, because the amount of equipment needed is largely dependent on the volume of movement, as are also certain maintenance of way expenses designed to adapt the track facilities to increased traffic. This consideration loses much of its force at a time of deep traffic depression. The road and equipment which was adequate for the traffic of 1929 is more than adequate for the traffic likely to develop in the near future, and hence, for the present additional capital investment is to be omitted from out-of-pocket cost except to the extent that it represents maintenance of the existing plant or is a means to added efficiency.

The circumstances under which it may be advisable in particular cases to seek traffic rates but little above the out-of-pocket cost is a matter of business judgment concerning which no opinion is expressed here. If all traffic were taken on that basis, the result would be bankruptcy. To take part of it on that basis may be theoretically sound under certain conditions if it can be obtained only upon such a concession. But if low rates but little above the out-of-pocket cost stimulate requests for reductions on other traffic, the gain may be illusory. At the present time, when truck competition and also water competition are setting new standards for freight rates, out-of-pocket cost may serve as a guide to a leading factor in the determination of the rock bottom rates which the rail carriers can make, it being understood, however, that it offers no standard for fair rates on the bulk of the traffic. As shown in Chapter II, out-of-pocket cost is not the sole criterion even for minimum rates. If there should be a common control of rail, water, and truck freight rates, the out-of-pocket basis might be largely discarded, except for fostering a new industry, and there might be substituted a complete cost of service basis tempered by considerations of what the traffic will bear, that is, some systematic basis in which cost and value of service are both given consideration.

Eastman Issues Passenger Ballot

WASHINGTON, D. C.

DO travelers want faster rail transportation with trains, for example, that travel at speeds of 90 miles an hour? Do they want transportation so co-ordinated that one ticket will cover all agencies, providing a "door to door" service? Do they want changes in present rail equipment? How do they rate the advantages of the various forms of passenger transportation? If rail fares and service were adjusted in better accord with the needs of travelers, to what extent would travel for business and pleasure be increased?

Answers to these questions and many others relating to the transportation wants of American travelers are sought by a "Passenger Ballot" which is being distributed by the Federal Co-ordinator of Transportation to 200,000 representative travelers in all parts of the United States.

The "ballot" is a 24-page pamphlet and each page calls for a "vote" on some phase of transportation service that is of immediate interest to travelers. It is stated that this can be voted in 17 minutes by the use of check marks and figures.

The purpose of the "ballot" is to discover "ways by which passenger service agencies (railway, highway, airway and waterway) can be co-ordinated, improved and made more usable", as the Co-ordinator explains in his letter addressed to "travelers".

Because of the limitations of cost and time it has been necessary to restrict distribution to selected groups of travelers. For that reason attention has been given to the appearance of the "ballot" using established principles that have been developed by commercial concerns, in the belief that by making it attractive the interest of those who receive it will be sufficiently aroused to assure

enough returns to provide genuinely representative opinions. It is published in compact pamphlet form, and has been illustrated, at trifling increase in expense, with pen-and-ink sketches.

Two other passenger survey forms were also released by the Co-ordinator's office on November 28. One of these is addressed to newspaper and magazine publishers, heads of leading advertising agencies, and managers of travel bureaus. Accompanying letters request that these be given for reply to editorial writers, advertising department heads, and others who specialize in some phase of passenger transportation. This inquiry seeks the benefit of the opinions of men who have the advantage of contacts with both the public and the transportation agencies.

Sales managers of businesses maintaining staffs of commercial travelers will receive the other inquiry. It provides those who travel regularly with an opportunity to offer detailed suggestions for the improvement of passenger services.

In the light of the replies to those three inquiry forms, the Co-ordinator's Section of Transportation Service will analyze new kinds of equipment and the ability of the transportation agencies to provide passenger service adjusted to the standards desired by those who travel.

Some of the questions asked in the questionnaires are:

In your opinion what basic fare per mile would produce the greatest carrier revenue?

Are Pullman accommodations so priced as to promote maximum volume of patronage?

To what extent do Pullman surcharges result in limitation of use?

Please indicate under what conditions and to what extent the following special rates are desirable:

(1) Excursions.

(2) Quantity discounts: for families, lodges, conventions, tour groups, etc., who travel as a party.

(3) Discounts for individuals who travel extensively such as traveling salesmen and other constant travelers.

In what respects are sales, advertising and promotional efforts of bus lines, air lines, and automobile manufacturers superior to those of the railroads?

Do the representatives of any of these services carry sales portfolios? Does this improve their presentation? What is the value of the visual exhibits submitted by railroad solicitors?

How could railroad sales, advertising and publicity efforts be co-ordinated better?

Based on your personal experience, what benefits can you see in the maintenance of off-line passenger agencies by railroads?

Have the passenger transportation or communication problems of your organization been analyzed by marketing specialists representing (a) motor manufacturers; (b) bus companies; (c) air lines; (d) railroads; (e) telephone or telegraph companies?

How extensive a marketing research staff is maintained by your organization?

In your opinion would railways' sales, advertising, promotional activities and service be improved through the maintaining of a specialized marketing division?

Give your evaluation of the passenger transportation agencies listed below indicating for each its proper sphere of service, and the ways in which each can be co-ordinated with rail service so as to promote the best interests of the public: (a) Private automobiles. (b) Busses. (c) Airplanes.

Give any other suggestions for the improvement of train service or which would increase travel by train.

What do you believe to be the chief sources of waste or the principal causes of any inefficiency in the passenger departments of the railroads? How can these situations be remedied? Please state fully what you think the railroads themselves ought to do, if anything, to correct present conditions in the field of passenger traffic.

Are there any equipment ideas; operating methods; service features; sales, advertising, or promotional methods used by English or Continental railroads that you think should be adopted by American railroads?

In what way could railroad commutation services be improved?

Odds and Ends . . .

A Tip for Rail Salesmen

The publicity department of the Canadian National has been doing some figuring and has issued an announcement which may possibly broaden the market for steel rail. It is pointed out that the Canadian National has 23,700 miles of track. If there were an even winter temperature of zero F. throughout the territory served by the company, it is calculated that 14 additional miles of rail would be needed to make up for the contraction of the laid rail at that temperature.

A 300-Mile Slice

A golf ball that O. P. Seeman, agent of the Canadian National at Port Colborne, Ont., had sliced when driving from the ninth tee of the Port Colborne Country Club course, traveled 300 miles and then came back to him. Mr. Seeman's tee shot not only went out of bounds but also disappeared into an open box car of a moving train. A few days later he received a package from Walkerville, Ont., which contained the lost ball. The agent of the Canadian National at Walkerville had found the ball in the car and, recognizing the name of his fellow agent on it, had mailed it back to him.

Coal for Little America

The Norfolk & Western is justifiably proud of the fact that mines along its line were the source of the coal—3,500 tons of it—which will be used to warm the members of Admiral Byrd's second expedition to the South Pole. An item in the current issue of the Norfolk & Western magazine reads, "Probably never before has any railroad's coal pier dumped that much coal for an arctic or antarctic region, and certainly no other railroad in this country has loaded a consignment of coal for Little America, South Pole. It is believed, too, that this shipment will set a record for the distance that 'Fuel Satisfaction' has traveled from our coal fields—approximately 10,000 miles."

A Fiddle for a Farm

A kingdom has been offered for a horse, but it remained for a North Carolina farmer to offer a violin in payment for some western land. According to John W. Haw, director of the agricultural development department of the Northern Pacific, he recently received a letter from a farmer living at King's Mountain, N. C., who, as a prospective settler on western land, advised that he was eager to obtain a farm but could offer in payment only a Stainer violin. Inquiry disclosed the fact that such a violin, if genuine, would have a market value in normal times of as high as \$1,400, but the Northern Pacific had to advise the owner that the instrument would have to be turned into cash before he could use it as a down payment on one of the excellent farms available.

Clock-Work Co-ordination for Clock Works

Thanks to co-ordinated transportation by airplane, steamship and train, a shipment of clock parts was recently transported from Stuttgart, Germany, to Mexico City, via the Port of New York, a distance of 7,270 miles, within eight days. The shipment left Stuttgart by plane at 7:30 a.m. on a Monday and reached Bremen just before the sailing of the North German Lloyd steamship "Europa," at noon that day. At 9 a.m. on the following Saturday, while the liner was 735 miles east of New York, the ship-to-shore plane, with the clock parts on board, was catapulted from the deck and hurried on its way to the "Europa's" South Brooklyn pier, where it landed at 6:50 p.m. Prompt transfer by a Railway Express Agency truck put the shipment on board an airplane of the United Air Lines which departed from Newark airport at 1:30 a.m. on Sunday, and Dallas, Tex., was reached at 4:30 p.m. the same day. A Missouri Pacific train continued the movement to Laredo, on the Mexican border, from which point the National Railways of Mexico took over the job of transportation, effecting the delivery of the shipment at Mexico City at 10:20 p.m. on Tuesday.

NEWS

U. S. Commerce Chamber's Transportation Policies

Statement of its transportation and communications committee is published

Recognizing the importance of transportation legislation expected to be considered in the coming session of Congress, the directors of the Chamber of Commerce of the U. S., have authorized publication of a statement on "National Transportation Policies," submitted by the transportation and communications department committee, of which Fred W. Sargent, president of the Chicago & Northwestern, is chairman, which assembles in a single presentation the declarations made by the Chamber's membership in recent years on the problems of transportation. The statement presents a comprehensive program for dealing with the questions of regulation of the various forms of domestic transportation.

"The objective of the national policies affecting domestic transportation should be to provide a progressively improved transportation system which will best meet the requirements of producers, distributors, consumers and the traveling public in the different sections of the country at the lowest cost consistent with effective service," says the statement. "The various agencies of transportation should be afforded opportunity to contribute to these ends according to their peculiar characteristics and capacities. The membership of the Chamber of Commerce of the United States have consistently followed these principles as the basis for the recommendations which they have from time to time put forward since the early days of the organization.

"In recent years the importance has been insistently urged of proper studies of current transportation problems and determination of the judgment of the business organizations of the country on the principal points involved. This led to the chamber's two latest referenda, the first dealing chiefly with railroad transportation and the second with competing forms of transportation. Other transportation questions have also been the subject of chamber declarations at the annual meetings of the past two years.

"The purpose of the present statement is to summarize the positions thus recently taken by the membership of the chamber and point out those most timely to urge in connection with reconsideration of regulation and legislation now so obviously required in the interest of the whole public.

"From the chamber's declarations in re-

cent years the consensus of business judgment stands out clearly that the railroads are the backbone of the country's transportation system, with which other forms of transportation should be properly related; that, on the one hand, the regulation of railroads is unjustifiably restrictive and rigid, and, that, on the other hand, the existing regulation of water and motor transportation is inadequate, with a view both to fair conditions of competition between the different transportation agencies and to sound conditions within each of the industries. Even with the curtailment and relaxation of regulation recommended by the chamber with reference to the railroads, the judgment is clear that the added regulation recommended with reference to water and highway transportation will still be necessary."

Labor Leaders Discuss Legislation With Eastman

A. F. Whitney, chairman of the Railway Labor Executives' Association, and other members of its executive committee, conferred with Joseph B. Eastman, federal co-ordinator of transportation, on November 27, on the program of railroad labor legislation they would like to have considered in connection with his forthcoming recommendations.

Wage Statistics For September

The total compensation of the 1,030,215 employees in the service of Class I railroads in September was \$123,866,950, according to the Interstate Commerce Commission's monthly statistics. This is greater than the corresponding figure for any month in the past year except that for August, which was \$126,967,310. The number of employees as of the middle of the month was 1,030,215 and 1,143,462 were reported as having received some pay during the month either for full time or part time. This is 14,461 larger than the corresponding total for August.

Pipe Line Investigation Proposed

Secretary of the Interior H. L. Ickes, who is also oil administrator, has announced that the petroleum administrative board is making an investigation of pipe operations with a view to action under Section 9(a) of the national industrial recovery act under which the President is authorized to initiate before the Interstate Commerce Commission proceedings necessary to prescribe regulations to control the operations of oil pipe lines and to fix reasonable, compensatory rates for the transportation of petroleum and its products.

I. C. C. Refuses to Suspend L. C. L. Store-Door Tariffs

C. & O., Pere Marquette and Nickel Plate get permission to file tariff on one-day's notice

The Interstate Commerce Commission in conference on November 27, voted not to suspend tariffs filed by the Pennsylvania, Grand Trunk, and Erie providing for pick-up and delivery service in connection with the transportation of freight articles in less than carload lots, effective December 1. "As this is clearly an experiment," the commission said in a press notice, it expects that records of operation under these tariffs will be kept currently and in such a way as will show clearly the results in order that the information can be furnished to the commission promptly if required.

The Chesapeake & Ohio, the New York, Chicago & St. Louis, and the Pere Marquette on the following day applied for and obtained permission to file similar tariffs, to become effective on one day's notice, and other lines were expected to take similar action.

Walter S. Franklin, traffic vice-president of the Pennsylvania, referring to the action of the Interstate Commerce Commission in the store-door collection and delivery case, said:

"Our management is deeply gratified at the course which the Commission has taken, though we anticipated that result from the start. We are now free to go ahead and give this carefully thought out experiment a practical trial. In our opinion it will be successful, as we believe it meets the modern needs of industry by providing through door-to-door service for less than carload freight, all under complete railroad responsibility.

"Another advantage which should not be overlooked by the general public is that it will tend to reduce congestion on the highways by confining trucking to terminal regions and making the inter-city highway truck haul unnecessary, in the case of a large volume of freight.

"We have practically completed our arrangements for the performance of the service through contracts with a large number of local truckers throughout territory of the Pennsylvania Railroad. Everything will be ready when the plan becomes effective December 1."

The American Trucking Associations, Inc., has distributed a pamphlet by Ted V. Rodgers, its president, attacking the plan. Some of the objections stated are as follows:

"There can be no question of the de-

(Continued on page 803)

Fletcher Gives Some Bus Facts to General Johnson

A.R.E. general counsel challenges statement on "tax" burdens of highway carriers

R. V. Fletcher, vice-chairman and general counsel of the Association of Railway Executives, has addressed a letter to General Hugh S. Johnson, administrator of the N. R. A., calling attention to the "wholly erroneous impression" created by statements made, or signed, by General Johnson in transmitting to the President the code for the bus industry. The statement said that the motor bus industry had "suffered not only from the depression but also from its disadvantageous competitive position with other passenger carriers" and that the taxes of "its principal competitor, the railroad," had increased but 25 per cent since 1919 as contrasted with a 500 per cent increase in the case of the motor bus industry.

"I submit, most respectfully," Judge Fletcher said, "that this statement does not portray the situation correctly. The railroads believe that the disadvantages have been and are on the side of the railroads in the competitive relationships between them and motor bus operations. In the interstate operations of the motor bus industry there has never been and is not at this time any form of regulation. As you are fully aware, the railroads, on the contrary, are strictly regulated in all of their important aspects of operation."

"Moreover, in dealing with the question of what you call taxes, a distinction must be made between general or property taxes for the support of the government and special taxes paid by motor bus vehicles as their contribution toward the construction and maintenance of the roadbed which they use."

"In 1919 there were only four states which levied any gasoline tax at all, namely, Oregon, Colorado and North Dakota with a one-cent gasoline tax, and New Mexico with a two-cent tax. These states were at that time and still are states of relatively light motor bus operations. It is also true that at that time the license fees levied against all motor vehicles, including buses, were of a nominal character and were not intended to be revenue producing. It becomes obvious, therefore, that the year 1919, taken as a basis of comparison, represents a period when motor buses were receiving a practically free highway over which to operate. In 1932, however, every state in the Union was applying a gasoline tax and was collecting a license fee for the purpose of revenue and for the purpose of imposing upon the motor bus a contribution in some manner commensurate with the cost of the highway which it used."

"Is it not, therefore, obvious that a comparison of this kind is wholly unfair? There is set forth in the attached table figures which show for the year 1933 that the general taxes on motor buses, which correspond with the railroad taxes used by you in the above quoted statement, represented only 0.79 per cent of total operating revenues on all kinds of opera-

tion; only 0.62 per cent on interstate operation; 0.66 per cent on intrastate operation. On a comparable basis, the Class I railways of the United States paid 8.8 per cent of their gross revenues in 1932 for general taxes."

"A correct comparison on the basis which you use requires that the cost to the rail carriers of the annual carrying charge on investment in right of way, maintenance of the right of way, and expenditures for crossing protection should be included with their general taxes. On this basis, as demonstrated by the attached table, the motor bus industry paid in general, special and gasoline taxes in 1931, on all operations, 6.90 per cent of their gross revenues, while railroads, on a comparable basis, paid 29.8 per cent of their gross revenues in 1931 and 34.5 per cent of their gross revenues in 1932. This makes an entirely different picture from the one presented in your letter of transmittal."

Southern's Winter Services to Florida

Because of the general improvement in conditions, the Southern anticipates for the 1933-34 season a substantial increase in Florida travel. It has now completed plans to install for the twenty-first consecutive year its Winter services operated in conjunction with the New York Central. As in previous years, the "Royal Palm" will have through sleeping cars from Chicago, Detroit, Mich., and Cincinnati, Ohio, to Jacksonville, Fla.; from Cleveland, Ohio, to St. Petersburg, Fla.; and also an Atlantic-Brunswick car to accommodate passengers for Winter resorts around these Georgia points. The "Ponce de Leon," another daily Florida train, will carry through sleeping cars from Chicago, Detroit and Cleveland to Jacksonville, Miami and St. Petersburg and from Cincinnati to Jacksonville.

Long Island Increases Train Service

The Long Island, on December 3, will add 71 trains to its passenger service, all of them within the electrified territory, and most of them between New York and Jamaica, 11 mi. Between Jamaica and the western termini, Pennsylvania Station, Manhattan, and Flatbush Avenue, Brooklyn, trains will be run at about 15-min. intervals, all day and until midnight, and at 30-min. intervals from midnight to 6 a.m. In the rush hours, the intervals are, and will continue to be, considerably less than 15 min. This change will put in service, in the mid-day hours, 23 additional trains between New York and Jamaica, and 23 between Brooklyn and Jamaica.

The experimental low fares, which have been in effect since last May, will be continued into 1934. These fares have not yet brought enough business to overcome the losses which have been sustained, but there has been a substantial increase, and it is believed that the additional trains will accelerate the improvement. The low-price round-trip tickets have been used extensively, by regular travelers including part-time workers, so that the actual number of commuters, so-called, in July, was only 4 per cent less than the total in that month last year.

Power Reverse Gear Order Annulled in Federal Court

I. C. C. is overruled in opinion handed down at Cleveland on November 24

The order of the Interstate Commerce Commission requiring the railways to install power reverse gears on locomotives was annulled by three federal judges at Cleveland, Ohio, on November 24. In the opinion, the judges held that the commission, in ordering the installation of the apparatus on the ground that there were more accidents with hand gear locomotives than with power gear locomotives, had ruled quantitatively rather than qualitatively.

The commission's order, based on a finding that the safety of employees and travelers on railroads requires it, holds that all steam locomotives built on or after April 1, 1933, must be equipped with a suitable type of power-operated reverse gear. The order followed an investigation made on a complaint filed by the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen. It directed that all steam locomotives used in road service prior to April 1, 1933, which weigh on driving wheels 150,000 lb. or more, and all used in switching service which weigh on driving wheels 130,000 lb. or more, be equipped with power-operated reverse gears the first time they are given repairs of Class 3, or heavier, and that all such locomotives shall be so equipped before January 1, 1937. While the order was originally made effective April 1, the effective date was later changed to July 1, 1933. In June the American Railway Association and the American Short Line Railroad Association filed a petition asking the Interstate Commerce Commission to postpone the effective date of this order, pending a decision on their request that the federal district court of the Northern District of Ohio set aside the commission's order.

Economy at Crossings

On a section of the West Shore (New York Central) between Rotterdam Junction and Utica, N. Y., about 66 miles, on which there are now no regular passenger trains, the line has been relieved also of through freight trains, which are to be run over the New York Central main line; and the remaining West Shore trains, local freights, will be stopped and flagged over highway crossings, thus permitting the discontinuance of watchman service at a number of crossings.

New York State Crossing Program

The list of grade crossings to be considered by the Public Service Commission of New York for elimination during 1934 includes 11 new projects and 70 which have been carried over from this year; a total of 81 projects, the estimated cost of which will be \$64,066,500. Many of the projects include more than one crossing. These proposals deal with crossings in 25 counties, none of which are within New York City.

Applications Are Filed for P. W. A. Rail Loans

C. & N. W. and C. & E. I. have asked I.C.C. for permission to arrange for purchases

Definite progress in the negotiations between the railroads and the Public Works Administration for loans for the purchase of rails and fastenings, under the \$51,000,000 allotment for this purpose approved by the Special Board of Public Works on November 2, was indicated when the Interstate Commerce Commission on November 28 made public applications filed by the Chicago & North Western and the Chicago & Eastern Illinois for authority to purchase rails and the necessary accessories, to make application to the Public Works Administrator for loans, and for authority to issue to the Administrator evidences of the indebtedness.

Negotiations also are still in progress on the contract with the Pennsylvania for the \$84,000,000 loan and with other railroads as to the possibility of loans for new equipment or for repair work.

The North Western application, for a loan of \$3,500,000 for the purchase of 65,000 tons of rails and about 18,000 tons of fastenings, tie plates, and accessories, stated that the Public Works Administrator had tendered a loan on unsecured promissory notes for ten years at 4 per cent, interest for the first year to be remitted. The application filed by Charles M. Thomson, trustee for the Chicago & Eastern Illinois, stated that the P. W. A. had offered a loan of \$251,300 for 4,000 tons of rails and the necessary fastenings, and asked authority to issue "such evidences of indebtedness as the Public Works Administrator may require and/or the certificates of indebtedness of the trustee." The Chicago, Milwaukee, St. Paul & Pacific had previously applied for \$1,818,750 for 50,000 tons of rails, on its unsecured promissory notes.

The North Western application was filed pursuant to the authority of resolutions adopted by its board of directors on September 13 stating that "the National Administration is desirous of having the railroads make loans in aid of its recovery program," and that the company desired to co-operate, and authorizing the president to negotiate loans on the best terms possible from the Public Works Administration or the Reconstruction Finance Corporation for not to exceed \$6,000,000 for rails and fastenings and \$1,000,000 to complete track elevation work at Kenosha, Wis.

The cost of the rails is placed at \$2,403,375, at the base price of \$36,375 a ton, and that of the fastenings at \$1,058,538.50. It is proposed to lay the new rail between Chicago and Council Bluffs, Ia., between Chicago, Milwaukee, Wis., and between Chicago and Elroy, Wis., replacing rail-laid in 1916 and 1917.

The C. & E. I. application is for 1,000 tons of 110-pound rail and 3,000 tons of 112-pound rail, to be used to replace 90-pound rail. It is stated that application has been made to the steel companies for prices for the fastenings.

The Public Works Administration has issued a nine-page circular stating the information required with application for loans to railroads. Authorization must be obtained from Interstate Commerce Commission prior to the granting of any loan but not prior to the making of application. The maturity of obligations may not exceed 30 years or the estimated life of any project or equipment involved whichever is less. Complete information is required as to the purpose of a loan, including a description of the proposed work and detailed statement as to all contracts in relation to the work; complete information is also required as to borrowing, company's financial and credit status.

Club Meetings

The Car Foremen's Association of Chicago will devote its regular monthly meeting, scheduled to be held Monday evening, December 11, at the Hotel LaSalle, Chicago, to a consideration of interchange rules governing the shipment of explosives. E. J. League, inspector, Bureau of Explosives, will present the paper of the evening, entitled "Handling Explosives and other Dangerous Articles."

The Western Railway Club will hold its Golden Anniversary Ladies' Night on Saturday evening, December 9, at the Hotel Sherman, Chicago. Following an informal dinner at 6:30 o'clock, the guest speaker, Dr. Edward C. Elliott, president of Purdue university, will be introduced by L. A. Downs, president of the Illinois Central. At the conclusion of Mr. Elliott's address, a program of entertainment will be presented for the benefit of members of the club and their guests.

Urges Business Men to Support Railroads

Because "Middletown's prosperity is inseparably linked with the prosperity of its railroads, anything which affects them adversely, affects us all adversely," the Middletown, N. Y., Chamber of Commerce, in a recent news letter, reminded shippers and receivers of freight there that they should patronize the railroads wherever and whenever they can.

"The Ontario & Western Railroad," the news letter says in part, "pays out more money in wages than any institution in Middletown. It pays a substantial share of our taxes. The Erie Railroad likewise pays out money in wages and a very substantial sum in taxes.

"Look at the bridge carrying the highway over the O. & W., just this side of Fair Oaks, and another on the road to Pine Bush. These were built at great expense to the O. & W. and they help every business man in Middletown by making traffic safer and speeding it up on the way here. How much do the big freight trucks contribute to all this? So far as Middletown is directly concerned—not one thin dime.

"There can be no such thing as prosperity in this country at the expense of one of the country's greatest industries, its life-blood being slowly sapped away by unfair competition; competition which traverses highways which the railroads help to build and maintain."

Bus Lines Move to Stop Railway Fare Reductions

Separate appeals are addressed to President Roosevelt, General Johnson and the I.C.C.

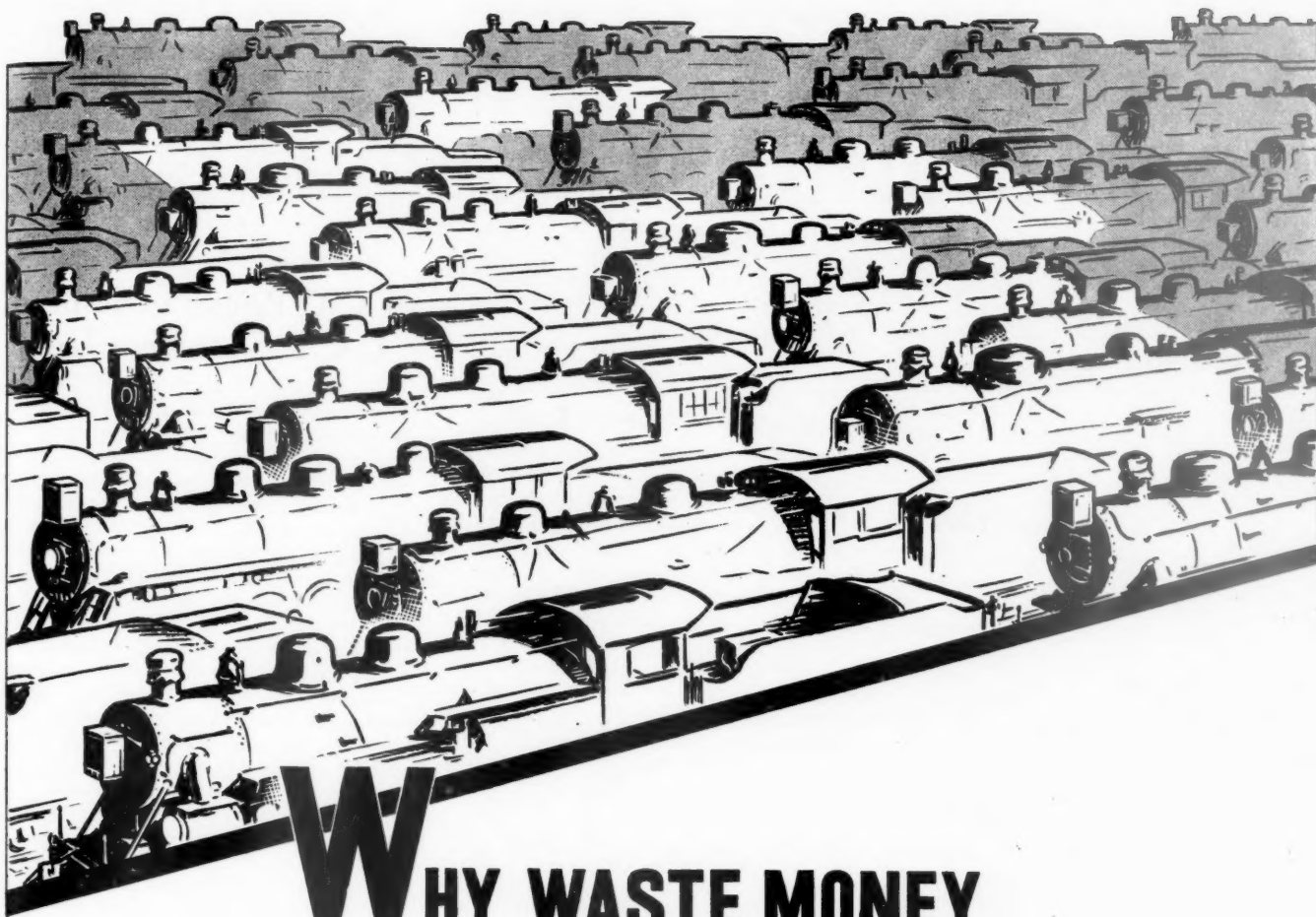
In three separate communications directed respectively to President Roosevelt, General Hugh S. Johnson, and the Interstate Commerce Commission, the motor bus lines have served notice of their intention to press for release from the provisions of the code of fair competition for the motor bus industry if the Administration and the commission do not take some steps to "stabilize rail passenger rates at a reasonably compensatory level" and so prevent the railroads from operating at "ruinous rates designed to cripple or destroy highway transportation."

Writing to President Roosevelt, A. M. Hill, president of the National Association of Motor Bus Operators, appealed to the President for his intervention in the "campaign of passenger rate cutting the railroads have started," saying that "we are under the code, our costs have increased, we have no freight or other revenues to replenish our passenger losses as is the case with the railroads, and I am sure that your spirit of fairness and sense of justice will point the way to an equitable clearing up of the anomalous situation which I have described."

The association also filed a petition with the commission for suspension of reduced passenger rates proposed by the southeastern railroads and for an investigation of reduced rates at present in effect, on the grounds that both the reduced rates now in effect on the Southern system and those proposed by all of the southeastern railroads to be effective December 1 were non-compensatory and had for their real purpose the destruction of passenger highway transportation. Rates proposed for operation after December 1 would specify a rate of 1½ cents per mile for coaches and 3 cents per mile for chair and sleeping cars, with no surcharge.

The Secretary of the Motor Bus Code Authority also directed a petition to General Johnson to intervene as a party in interest, stating that in agreeing to operate under a code, the motor bus industry had assurances from his aides that the N.R.A. would co-operate with the motor bus operators in preventing the railroads from taking advantage of the operation of the code to cut rates to a non-compensatory level. Referring to conferences with government officials before the bus code was submitted and "the assurances that were given that the motor bus industry would be protected from unfair competition," the association's petition said:

"Specifically, the industry was advised that if it could put its own house in order by means of fair practice provisions in the code, every assistance would be given to it by governmental agencies to prevent destructive competition between the motor bus industry and the railroads. The motor bus operators have now come to the



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HY WASTE MONEY

ON OBSOLETE LOCOMOTIVES ?

More than ten thousand locomotives are awaiting classified repairs. • Much of this power is obsolete. • Money spent repairing old locomotives which cannot keep pace with modern power increases operating expenses.



point where their house is in order, where they are operating according to standards of fair practice but where their operating costs by reason of the code have been increased to a point where they cannot engage in a rate war with a competing industry. On the other hand, the railroads have been asked to do nothing to comply with the President's recovery program beyond spending some of the government's money and are in a position, if the commission does not interfere, to cut their passenger rates any amount for the purpose of destroying competition on the highway. With their freight revenues to depend upon and with the financial assistance of the government to be had for the asking, rail carriers instituting low passenger rates have no fear of mounting deficits in their passenger service."

N. & W. Cuts Passenger Fares

The Norfolk & Western, on December 1, inaugurated passenger rates at two cents a mile for travel in coaches and three cents per mile in Pullmans with the sur-charge eliminated. The new rates will be applicable to the greater part of the N. & W. system, but there will be no change in the present fare between Roanoke, Va., and Hagerstown, Md. or between Walton, Va., and Cincinnati, Ohio, and Columbus.

Northern Pacific Adds New Train

The Northern Pacific has incorporated several modern appointments in a new train which it placed in service between the Twin Cities and Fargo, N. D., on November 26. The Fargonian, as the train is called has a lounge coach with upholstered revolving chairs similar to those in parlor cars. The train leaves St. Paul at 5:15 p.m. and arrives in Fargo, 252 miles, at 11:59 p.m.; returning, leaves Fargo at 9 a.m. and arrives in St. Paul at 3:45 p.m. The Northern Pacific also has placed modern equipment in the Manitoba Limited, operating between the Twin Cities and Winnipeg, Man. This train now has a smoking car, a coach, and a dining-lounge coach, furnishing meals at moderate cost.

Greater Flexibility In Rates Asked

Greater flexibility in railroad rates, the rates to be based on competitive and market conditions rather than on distance or cost of service, is asked as a general rate policy by the Special committee on railroad rates of the Chamber of Commerce of the United States. The committee's recommendations are contained in a report to the board of directors and will be distributed to the membership for consideration at the next annual meeting. The recommendations of the committee are that:

"Simplification and unification of classification ratings should be worked out by the railroads in cooperation with shippers and with the assistance of the Interstate Commerce Commission.

"Greater flexibility in railroad rates should be secured through recognition of competitive and market conditions rather than distance or cost of service; chief responsibility for railroad rates should be handed back to the railroad managements;

the regulating authorities should act to prevent or remove only discriminations not reasonably necessary to meet competitive or market conditions or competition of other forms of transportation; and any necessary changes should be made in Sections 3 and 4 of the Interstate Commerce Act to accomplish these purposes.

"The statutory advance notice period for the entry into effect of new rates should be reduced to ten days.

"The law should be amended so as to permit simplification and expedition of procedure in rate cases, and the maximum suspension period should be reduced to not more than three months."

Century of Progress Traffic

That A Century of Progress Exposition held at Chicago from June 1 to November 12 stimulated rail travel is shown by figures that have just been compiled by the railroads and the Pullman Company. During the period from June 1 to October 31, the Pullman Company operated 18,334 extra cars, in addition to 62,275 regular cars, the total carrying 942,155 passengers into Chicago. The number of passengers carried into Chicago by some of the individual lines are as follows: New York Central Lines, 652,147; Chicago & North Western, 668,000; Illinois Central, 273,354; Atchison, Topeka & Santa Fe, 180,000; the Chicago, Burlington & Quincy, May 27 to September 30, 183,382, and Baltimore & Ohio, 135,471.

Two Emergency Boards Appointed

President Roosevelt on November 24 issued a proclamation creating an emergency board to investigate a labor dispute between the Texas & New Orleans and the brotherhoods of train service employees, which had threatened a strike, and on the following day a similar proclamation in a dispute between the Mobile & Ohio and its employees. The members of the first board consist of Walter P. Stacy, chief justice of the supreme court of North Carolina, L. W. Courtney, professor at Baylor University, and Frank P. Douglass, business man, of Oklahoma City, Okla. They were to begin the investigation at Houston on November 29. The members of the second board are: Dr. Davis R. Dewey, chief of Department of Economics, Massachusetts Institute of Technology, Col. Walter C. Clephane, professor of law at George Washington University, and Homer B. Dibell, justice of the supreme court of Minnesota. They were to begin sessions at Mobile on November 29.

The controversy on the Texas & New Orleans (the Southern Pacific Lines in Texas and Louisiana) involves 108 grievances pertaining to wage adjustments, employment and working conditions submitted to the management by representatives of about 3,000 engine and train service employees of the four brotherhoods. Following refusal of the management to meet the demands of the employees a strike vote was taken and preparations were made to strike on November 25. Upon an order issued by the President of the United States the brotherhoods postponed the threatened walkout.

On the Mobile & Ohio 577 craftsmen, 636 shop employees and 651 maintenance of way laborers are seeking a discontinuance of the 10 per cent reduction from pay checks agreed to after the appointment of a receiver. The matter has been before a board of mediation for two weeks and when no agreement was reached a strike vote was taken. December 1 was set for a walkout.

I. C. C. Refuses to Suspend L. C. L. Store-Door Tariffs

(Continued from page 800)

moralizing effect of the proposed tariffs on the program of the National Recovery Administration. They would completely demoralize the existing basis of drayage rates in each city where the tariffs would apply. The concentration of the railroad transported freight in one or more contract truckmen in each city would tremendously increase the cost of the less favored draymen on all of their other business not transported by rail. Inability to secure a compensating increase in revenue on such business, which is most unlikely, would force such less favored draymen to cease operating through inability to meet his pay rolls and the cost of his overhead.

"Thus the inevitable result would be to put many small operators out of business, causing not only the employers of such small operators to join the ranks of the unemployed but making an economic wreck of the truckman himself, likewise causing him to join the ranks of the unemployed.

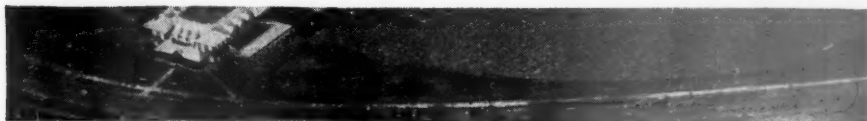
"Such destructive program is advocated by those railroad organizations which are enjoying subsidies in the shape of loans from the Reconstruction Finance Corporation, taxpayers' money to which the same local draymen are making contributions daily.

"The forcing down of the inter-city rates would also have its effect upon the ability of the over-the-road truckmen to continue operations, to maintain his rates of pay under the Code now under consideration by the National Recovery Administration or even to maintain the present number of employees.

"Thus we would have a flagrant instance of a regulated industry, under the protective guidance of the Interstate Commerce Commission, invading the field of another industry not enjoying such protection or subsidy but which is cooperating wholeheartedly with the President and the National Recovery Administration under whose protection all regulated industries must array themselves. As a matter of fact, the avowed purpose of one of the railroads publishing the tariffs in question is to do away with truckmen as evidenced by the following statement in one of their replies to protests against the tariffs: In so far as the performance of drayage is concerned, shippers can do away with their truckers if the tariff becomes effective.

"Moreover, the tariffs are proposed to become effective at a time when the trucking industry is making every effort to align itself in a Code of Fair Practice which looks to the stabilization of the industry and its anticipated ability to pay stabilized

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EXCESS CAPACITY IS UNECONOMIC



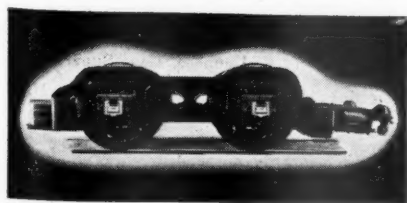
This great stadium was built to supply peak capacity a few times a year. It is uneconomic.

Building a locomotive with larger cylinders and another pair of drivers to supply a peak demand that is reached only infrequently is uneconomic.

Design the locomotive sufficiently big to supply the power normally required and use The Locomotive Booster for the peak loads.

Then you avoid hauling around a lot of extra capacity that costs money to build and money to maintain and that is seldom needed.

The most economical motive power units incorporate The Locomotive Booster as an integral part of the design.



FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK

CHICAGO

MONTREAL

wages, to increase employment and to increase purchasing power. What particular importance, it may be asked, is attached to December 1st as the effective date? What is the rush about getting these tariffs into effect after many years of discussion as to their advisability? What harm could come from a delay of a mere period of investigation into the merits of the tariffs when actually the idea has been a matter of discussion for years past?

"The tariffs would actually completely destroy existing methods of distribution—the very thing the National Recovery Administration is attempting to and will co-ordinate in a Code of Fair Practice, a condition which will soon clarify and make orderly the situation which the proposed tariffs are designed to meet in competition.

"These tariffs come at a time of national emergency when the call has gone forth for universal co-operation to promote fair practices; to eliminate cut-throat competition; to prevent monopoly, and to protect and foster small enterprises, all of which principles would obviously be violated by the approval of the tariffs in question.

"Not only would these tariffs become effective when the country is in a state equal to that of war times but also just when the need of revamping the transportation facilities of the country has been recognized by the appointment of a Federal Co-ordinator of Transportation. The Co-ordinator has for some time been investigating conditions but his report and recommendations have not yet been completed and formulated. The trucking industry has to look forward to different combinations of transportation agencies, methods of freight handling and selection of equipment, in which the industry of local trucking is entitled to find a place in accordance with its usefulness, and against which it should not be foreclosed at this time by something that is admittedly experimental."

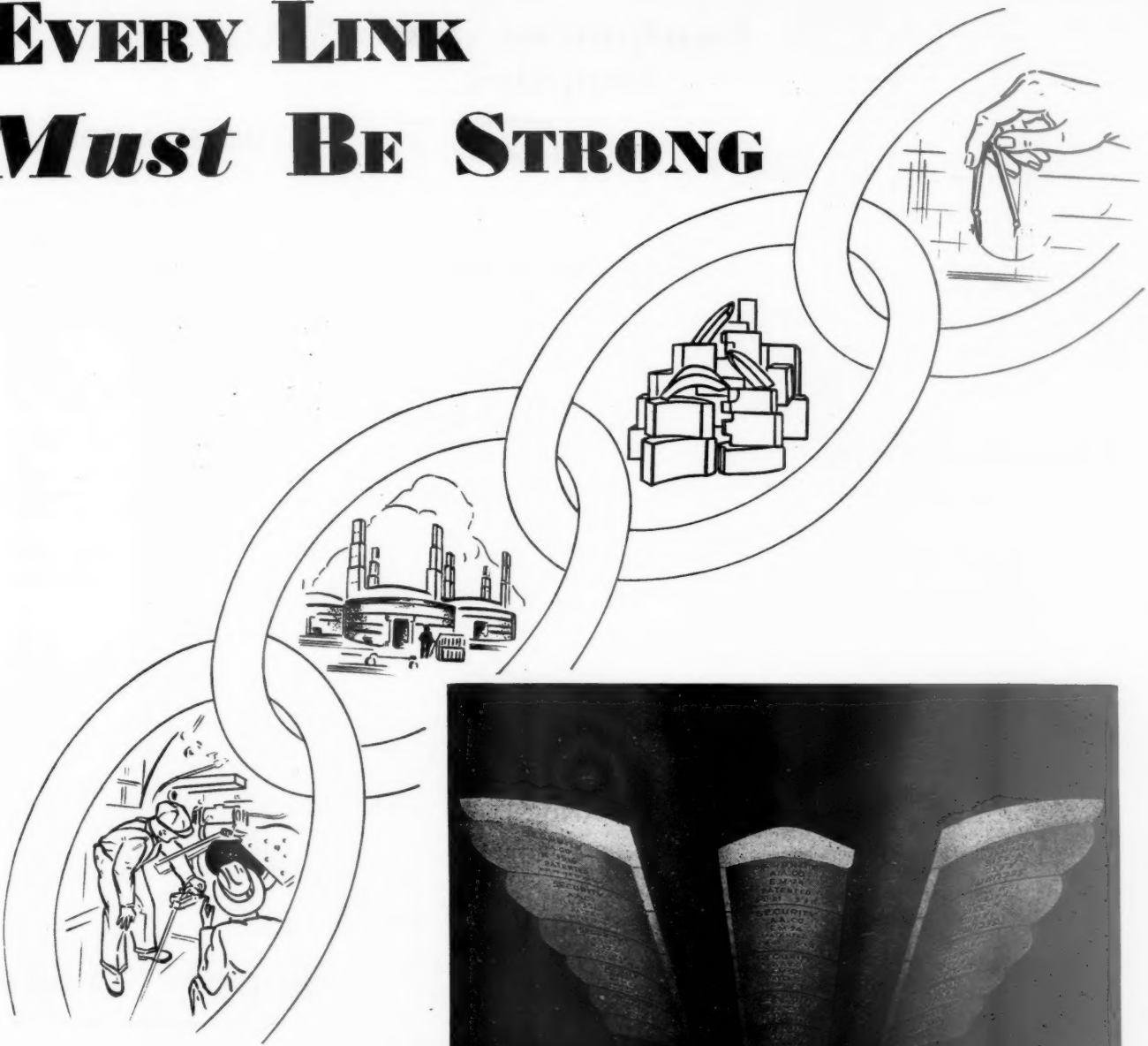
Meetings & Conventions

The following list gives names of secretaries, date of next or regular meetings and places of meetings.

- AIR BRAKE ASSOCIATION.**—T. L. Burton, Room 2205, 150 Broadway, New York, N. Y.
- ALLIED RAILWAY SUPPLY ASSOCIATION.**—F. W. Venton, Crane Company, 836 S. Michigan Ave., Chicago, Ill. To meet with Air Brake Association, Car Department Officers' Association, International Railroad Master Blacksmiths' Association, International Railway Fuel Association, International Railway General Foremen's Association, Master Boiler Makers' Association and the Traveling Engineers' Association.
- AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.**—W. R. Curtis, F. T. R., M. & O. R. R., Chicago, Ill.
- AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.**—E. L. Duncan, 332 S. Michigan Ave., Chicago, Ill.
- AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.**—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York, N. Y.
- AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.**—F. O. Whiteman, Union Station, St. Louis, Mo. Annual meeting, June 18-20, 1934, Hotel Sherman, Chicago, Ill.
- AMERICAN ASSOCIATION OF RAILWAY ADVERTISING AGENTS.**—E. A. Abbott, Poole Bros., Inc., 85 W. Harrison St., Chicago, Ill. Next meeting, January 19-20, 1934, New York, N. Y.
- AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.**—F. R. Berger, C. I. & L. Ry., 836 Federal St., Chicago, Ill.
- AMERICAN ELECTRIC RAILWAY ASSOCIATION.**—(See American Transit Association.)
- AMERICAN RAILWAY ASSOCIATION.**—H. J. Forster, 30 Vesey St., New York, N. Y.
- Division I.—Operating.**—J. C. Caviston, 30 Vesey St., New York, N. Y.
- Freight Station Section.**—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago, Ill.
- Medical and Surgical Section.**—J. C. Caviston, 30 Vesey St., New York, N. Y.
- Protective Section.**—J. C. Caviston, 30 Vesey St., New York, N. Y.
- Safety Section.**—J. C. Caviston, 30 Vesey St., New York, N. Y.
- Telegraph and Telephone Section.**—W. A. Fairbanks, 30 Vesey St., New York, N. Y. Annual Meeting, June 12-14, 1934, Hotel Stevens, Chicago, Ill.
- Division II.—Transportation.**—G. W. Covert, 59 East Van Buren St., Chicago, Ill.
- Division III.—Traffic.**—J. Gottschalk, 143 Liberty St., New York, N. Y.
- Division IV.—Engineering.**—E. H. Fritch, 59 East Van Buren St., Chicago, Ill. Annual meeting, March 13-14, 1934, Palmer House, Chicago, Ill. Exhibit by National Railway Appliances Association.
- Construction and Maintenance Section.**—E. H. Fritch, 59 East Van Buren St., Chicago, Ill. Annual Meeting, March 13-14, 1934, Palmer House, Chicago, Ill.
- Electrical Section.**—E. H. Fritch, 59 East Van Buren St., Chicago, Ill.
- Signal Section.**—R. H. C. Balliet, 30 Vesey St., New York, N. Y.
- Division V.—Mechanical.**—V. R. Hawthorne, 59 East Van Buren St., Chicago, Ill.
- Equipment Painting Section.**—V. R. Hawthorne, 59 East Van Buren St., Chicago, Ill.
- Division VI.—Purchases and Stores.**—W. J. Farrell, 30 Vesey St., New York, N. Y.
- Division VII.—Freight Claims.**—Lewis Pilcher, 59 East Van Buren St., Chicago, Ill.
- Division VIII.—Motor Transport.**—George M. Campbell, 30 Vesey St., New York, N. Y.
- Car Service Division.**—C. A. Buch, 17th and H. Sts., N. W., Washington, D. C.
- AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.**—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago, Ill.
- AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.**—J. A. Senter, Ind., Agt., N. C. & St. L. Ry., Nashville, Tenn. Semi-annual meeting, December 7-8, 1933, Sherman Hotel, Chicago, Ill.
- AMERICAN RAILWAY ENGINEERING ASSOCIATION.**—Works in co-operation with the American Railway Association. **Division IV.**—E. H. Fritch, 59 East Van Buren St., Chicago, Ill. Annual meeting, March 13-14, 1934, Chicago, Ill. Exhibit by National Railway Appliances Association.
- AMERICAN RAILWAY MAGAZINE EDITOR'S ASSOCIATION.**—J. L. James, L. & N. Employees' Magazine, Louisville, Ky.
- AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.**—G. G. Macina, C. M., St. P. & P. R. R., 11402 Calumet Ave., Chicago, Ill. Exhibit by Tool Foremen Suppliers' Association.
- AMERICAN SHORT LINE RAILROAD ASSOCIATION.**—R. E. Schindler, Union Trust Bldg., Washington, D. C.
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS.**—Calvin W. Rice, 29 W. 39th St., New York, N. Y. Annual meeting, December 4-8, 1933, 29 W. 39th St., New York, N. Y.
- Railroad Division.**—Marion B. Richardson, Ahrens & Richardson, 30 Church St., New York, N. Y.
- AMERICAN TRANSIT ASSOCIATION.**—Guy C. Hecker, 292 Madison Ave., New York, N. Y.
- AMERICAN WOOD PRESERVERS' ASSOCIATION.**—H. L. Dawson, 1427 Eye St., N. W., Washington, D. C. Annual meeting, January 23-25, 1934, Rice Hotel, Houston, Tex.
- ASSOCIATION OF RAILWAY CLAIM AGENTS.**—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn. Annual meeting, 1934, Cleveland, Ohio.
- ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.**—Jos. A. Andreucetti, C. & N. W., 1519 Daily News Building, 400 W. Madison St., Chicago, Ill. Exhibit by Railway Electrical Supply Manufacturers' Association.
- ASSOCIATION OF RAILWAY EXECUTIVES.**—Stanley J. Strong, Transportation Building, Washington, D. C.
- BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.**—J. W. Shoop, The Lehon Company, Oakley Ave., 44th & 45th Sts., Chicago, Ill. Meets with American Railway Bridge and Building Association.
- CANADIAN RAILWAY CLUB.**—C. R. Crook, 2276 Wilson Ave., N. D. G., Montreal, Que. Regular meetings, second Monday of each month, except June, July, and August, Windsor Hotel, Montreal, Que.
- CAR DEPARTMENT OFFICERS' ASSOCIATION.**—A. S. Sternberg, M. C. B. Belt Ry. of Chicago, 7926 South Morgan Street, Chicago, Ill.
- CAR FOREMEN'S ASSOCIATION OF CHICAGO.**—G. K. Oliver, 2514 W. 55th St., Chicago, Ill. Regular meetings, second Monday of each month, except June, July and August, Bismarck Hotel, Chicago, Ill.
- CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.**—J. W. Krause, Room 299, 610 So. Main St., Los Angeles, Cal. Club not active at present time.
- CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.**—J. F. Brady, Main and Barton Sts., St. Louis, Mo. Operation suspended indefinitely.
- CENTRAL RAILWAY CLUB OF BUFFALO.**—M. D. Reed, 1817 Hotel Statler, McKinley Square, Buffalo, N. Y. Regular meetings, second Thursday of each month, except June, July and August, Hotel Statler, Buffalo, N. Y.
- CINCINNATI RAILWAY CLUB.**—D. R. Boyd, 2920 Utopia Place, Hyde Park, Cincinnati, Ohio. Operation suspended indefinitely.
- CLEVELAND RAILWAY CLUB.**—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Regular meetings second Monday of each month, except June, July and August, Hotel Cleveland, Cleveland, Ohio.
- INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.**—W. J. Mayer, Michigan Central R. R., Detroit, Mich.
- INTERNATIONAL RAILWAY FUEL ASSOCIATION.**—T. D. Smith, 1660 Old Colony Building, Chicago, Ill.
- INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.**—Wm. Hall, 1061 W. Wabasha St., Winona, Minn.
- MASTER BOILER MAKERS' ASSOCIATION.**—A. F. Stigmeier, 29 Parkwood St., Albany, N. Y.
- NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.**—James B. Walker, 270 Madison Ave., New York, N. Y.
- NATIONAL RAILWAY APPLIANCES ASSOCIATION.**—C. W. Kelly, Suite 322, 910 South Michigan Ave., Chicago, Ill. Exhibit at A. R. E. A. convention.
- NATIONAL SAFETY COUNCIL.**—Steam Railroad Section (See Safety Section, American Railway Association).
- NEW ENGLAND RAILROAD CLUB.**—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, second Tuesday of each month, except June, July, August and September. December meeting to be held at University Club, 40 Trinity Place, Boston, Mass.
- NEW YORK RAILROAD CLUB.**—D. W. Pye, 30 Church St., New York, N. Y. Regular meetings third Friday of each month, except June, July and August, 29 W. 39th St., New York, N. Y.
- PACIFIC RAILWAY CLUB.**—W. S. Wollner, P. O. Box, 3275, San Francisco, Cal. Regular meetings second Thursday of each month, alternately in San Francisco and Oakland.
- RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.**—E. R. Woodson, Transportation Building, Washington, D. C. Annual meeting, 1934, White Sulphur Springs, Va.
- RAILWAY BUSINESS ASSOCIATION.**—P. H. Middleton (Treas. and Asst. Sec.), First National Bank Building, Chicago, Ill.
- RAILWAY CLUB OF PITTSBURGH.**—J. D. Conway, 1841 Oliver Building, Pittsburgh, Pa. Regular meetings, fourth Thursday of each month except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.
- RAILWAY ELECTRICAL SUPPLY MANUFACTURERS ASSOCIATION.**—Edward Wray, 9 S. Clinton St., Chicago, Ill. Meets with Association of Railway Electrical Engineers.
- RAILWAY FIRE PROTECTION ASSOCIATION.**—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md.
- RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.**—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division Purchases and Stores Division and Motor Transport Division, American Railway Association.
- RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.**—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with Telegraph and Telephone Section of A. R. A. Division I.
- RAILWAY TIE ASSOCIATION.**—Roy M. Edmonds, 1252 Syndicate Trust Bldg., St. Louis, Mo.
- RAILWAY TREASURY OFFICERS' ASSOCIATION.**—L. W. Cox, 1428 Broad Street Station Building, Philadelphia, Pa.
- ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.**—T. F. Donahoe, Gen. Supvr., Road, Baltimore & Ohio, Pittsburgh, Pa. Annual meeting, September 18-20, 1934, Hotel Stevens, Chicago, Ill.
- ST. LOUIS RAILWAY CLUB.**—B. W. Frauenthal, Drawer 24, M. P. O., St. Louis, Mo. Meetings temporarily suspended.
- SIGNAL APPLIANCE ASSOCIATION.**—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with A. R. A. Signal Section.
- SOCIETY OF OFFICERS, EASTERN ASSOCIATIONS OF RAILROAD VETERANS.**—M. W. Jones, Baltimore & Ohio, Mt. Royal Station, Baltimore, Md.
- SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.**—A. T. Miller, 4 Hunter St., S. E., Atlanta, Ga. Regular meetings, third Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta, Ga.
- SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.**—R. G. Parks, A. B. & C. R. R., Atlanta, Ga.

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EVERY LINK Must Be Strong



In the chain of Arch Brick supply, every link must be dependable or trouble looms for the railroad.

Design — Specification — Manufacture — Service.

All these are adequately provided for when American Arch Company supplies the Arch Brick.

American Arch Company, with a quarter-century of experience concentrated on Arch Brick, gives assurance of correct design and



specification to meet varying combustion conditions. It also has a thoroughly seasoned organization of supply and service that puts the Arch Brick where and when you want it and assists in its economical use.

This, coupled with the facilities of the country's leading refractory manufacturers who produce the Arch Brick, is the best possible guarantee of a dependable supply.

**HARBISON-WALKER
REFRACTORIES CO.**

Refractory Specialists



**AMERICAN ARCH CO.
INCORPORATED**

**Locomotive Combustion
Specialists** * * *

SUPPLY MEN'S ASSOCIATION.—E. H. Hancock, Treasurer, Louisville Varnish Co., Louisville, Ky. Meets with A. R. A. Division V, Equipment Painting Section.

TOOL FOREMEN SUPPLIERS' ASSOCIATION.—E. E. Caswell, Union Twist Drill Co., 11 S. Clinton St., Chicago, Ill. Meets with American Railway Tool Foremen's Association.

TORONTO RAILWAY CLUB.—N. A. Walford, P. O. Box 8, Terminal "A," Toronto, Ont. Regular meetings first Friday of each month, except June, July and August. Royal York Hotel, Toronto, Ont.

TRACK SUPPLY ASSOCIATION.—L. C. Ryan, Oxweld Railroad Service Co., Carbon & Carbide Building, Chicago, Ill. Meets with Roadmasters and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, 1177 East 98th St., Cleveland, O.
WESTERN RAILWAY CLUB.—C. L. Emerson, C. M. St. P. & P., Chicago, Ill. Regular meetings third Monday of each month, except June, July, August and September, Hotel Sherman, Chicago, Ill.

Construction

BALTIMORE & OHIO.—A contract has been given to the J. L. Boyle Engineering & Construction Company, Newark, N. J., for the elimination of the grade crossing at Old Town road, Old Town, Staten Island, N. Y. The work involves the use of 80 tons of steel.

DENVER PACIFIC.—Division 4 of the Interstate Commerce Commission had denied this company's application for a certificate authorizing the construction of a new line from Denver, Colo., to Los Angeles, Calif.

LEHIGH VALLEY.—The New Jersey Board of Public Utility Commissioners has ordered that work shall be started by February 1, 1934, to alter the crossings of this road at grade, located at Central avenue in the township of Clark, Union county, N. J., and at Park avenue in the borough of South Plainfield, Middlesex county.

NEW JERSEY JUNCTION-ERIE.—The New Jersey Board of Public Utility Commissioners has directed that work be started by February 1, 1934, on the elimination of the grade crossing of the New Jersey Junction, New York Central, lessee, and the Erie, at Willow avenue, Hoboken, N. J. This is to be accomplished by building a steel viaduct to carry the center portion of Willow avenue over the tracks, at an estimated cost of \$485,000.

NEW YORK CENTRAL.—The Pennsylvania Public Service Commission has ordered the elimination of the grade crossing over four tracks of this road in Girard township, Erie county, Pa. This is to be accomplished by constructing a bridge and approaches to carry the highway over the tracks. The bridge will have five spans—the center span to be of through plate girder type with a clear span of 75 ft. and there will be two 40-ft. concrete approach spans on each side. The improvements are estimated to cost \$133,285, exclusive of land damages and alterations to any facilities of the railroad company, the latter to be made by the railroad company at its own expense. The Department of Highways has been ordered by the commission to submit detail plans of the bridge and carry out the work by November 1, 1934.

Equipment and Supplies

FREIGHT CARS

THE KANSAS CITY SOUTHERN is constructing 100 single sheath box cars in its own shops at Pittsburg, Kan.

THE CARBIDE & CARBON CHEMICAL CORPORATION has ordered four aluminum tank cars of 8,000 gal. capacity from the General American Transportation Corporation.

THE MATHIESON ALKALI WORKS has ordered 10 tank cars of 30 tons' capacity for carrying liquid chlorine, from the General American Transportation Corporation.

THE UNITED FRUIT COMPANY, reported in the *Railway Age* of October 7 as inquiring for 20 flat cars of 20 tons capacity and 36-in. gage, for export, has ordered this equipment from the Pullman-Standard Car Export Corporation.

THE UNITED STATES NAVY has ordered eighteen 50-ton flat cars, two 70-ton flat cars, seven 50-ton box cars, four 50-ton gondola cars, two 50-ton hopper cars from the Haffner-Thrall Car Company, Chicago. Inquiry for this equipment was reported in the *Railway Age* of September 16.

IRON AND STEEL

APPLICATIONS FILED FOR RAIL LOANS.—See item on page 802.

SIGNALING

Pennsylvania Commission Orders Crossing Signals on Montour

The Pennsylvania Public Service Commission has ordered the Montour Railroad to install standard flashlight signals at two grade crossings 300 ft. apart, one in North Fayette and the other in Findley, the parties involved having agreed upon a plan; and the commission, acting under the appropriation act No. 15-A, of June 11, 1931, appropriates for these signals \$693.

A 157-Year Old Lesson Still Unlearned

When the carriages which pass over a highway or bridge, and the lighters which sail upon a navigable canal, pay toll in proportion to their weight or their tonnage, they pay for the maintenance of those public works exactly in proportion to the wear and tear which they occasion of them. It seems scarce possible to invent a more equitable way of maintaining such works . . . When high roads, bridges, canals, etc., are in this manner made and supported by the commerce which is carried on by means of them, they can be made only where that commerce requires them, and consequently where it is proper to make them.

Adam Smith in the Wealth of Nations (A. D. 1776).

this being one-half the estimated cost. One of the crossings is on the road known as Steubenville Pike, and the other on Rural Traffic Route No. 78.

MISCELLANEOUS

THE PENNSYLVANIA has placed orders for 109 sets of electric storage batteries divided as follows: U.S.L. Battery Corporation, 69 of 480 amp. hr. capacity and Edison Storage Battery Company, 10 of 426 amp. hr. capacity, for service in coaches; K. W. Battery Company, 30 of 800 amp. hr. capacity, for service in dining cars.

SEABOARD AIR LINE.—The Orange Blossom Special, New York-Florida train operated by this road in conjunction with the Pennsylvania and the Richmond, Fredericksburg & Potomac will commence this season's operations on January 2, 1934, with completely air-conditioned equipment, according to an announcement issued on November 27. The air-conditioning system of the Pullman Car & Manufacturing Corporation will be used.

THE NEW YORK CENTRAL has placed orders for 26 batteries, 15 trucks and 6 tractors for handling mail from train platforms in and about the new parcel post building on the west side of New York City. There will be 15 Automatic Transportation Company trucks, 6 Elwell-Parker Electric Company tractors, and 5 extra batteries. Contracts for 18 of the batteries have been let to the Electric Storage Battery Company and 8 to the Gould Storage Battery Company.

Supply Trade

L. F. Hickernell, in the service of the **Anaconda Wire & Cable Company**, Hastings-on-Hudson, N. Y., since December, 1931, as electrical engineer, has been appointed chief engineer of that company.

Williams & Brown, consulting engineers specializing in the design of fixed and movable bridges, have moved their office from 150 Broadway to 50 West Fiftieth street, New York.

Philip L. Maury has acquired a substantial interest in **The Valle' Company**, Cleveland, Ohio, and has become the company's executive vice-president and treasurer. **Dr. C. D. Valle'** continues as president. The Valle' Company specializes in the manufacture of paints, varnishes and lacquers for industrial use.

W. W. Gill, for the past four years national accounts sales representative at New York for the **B. F. Goodrich Company**, Akron, Ohio, has been appointed manager of the national accounts sales division of the truck and bus tire department of the company. He succeeds **H. C. Russell**, who died suddenly in Chicago after a heart attack on October 25. **J. R. Rutherford**, sales supervisor in the Mil-

Continued on next left-hand page

Have You Unserviceable Superheater Units?



Then this will interest you

These are superheater units that originally were flawlessly manufactured. Now, after many years of the severest duty, they are no longer serviceable and have been returned to the Elesco plant for rehabilitation.

Here, they are dis-assembled, and only the tubing found in good condition will be retained for use again in remanufacturing the units to proper dimensions. The fact that in remanufacturing units, we utilize the tubing that is still in serviceable condition, makes remanufactured units so much lower in cost than new units. But, otherwise, remanufactured units give the same highly

efficient service; because the same care and precision are taken in remanufacturing units as in making new ones.

The Elesco unit remanufacturing service is the logical method of replacing unserviceable units. It costs less than to replace with new units. It is assurance of trouble-free unit service for many years.



The Superheater Company
Representative of AMERICAN THROTTLE COMPANY, INC.

60 East 42nd Street
New York



Peoples Gas Building
Chicago

A-820

Canada: THE SUPERHEATER COMPANY, LTD., MONTREAL

Superheaters . Feed Water Heaters . Exhaust Steam Injectors . Superheated Steam Pyrometers . American Throttles

waukee district succeeds Mr. Gill at New York.

Gas-Powered Industrial Truck Association Organized

The Gas-Powered Industrial Truck Association, New York, recently organized and elected to membership in the Machinery and Allied Products Institute, will prepare a code of fair competition for submission to the National Recovery Administration. The officers of the association are as follows: **Ezra W. Clark**, president, vice-president of the Clark Tractor Co., Battle Creek, Mich.; **L. J. Kline**, vice-president, general manager of the Mercury Manufacturing Co., Chicago, and **John A. Cronin**, secretary-treasurer, 60 East Forty-second street, New York City.

OBITUARY

Martin K. Northam, head of Railway and Manufacturers Agents, Chicago, died on November 25 of heart failure.

Morton Kirk Moore, for many years in charge of sales of car wheels for the Decatur Car Wheel Company, at Decatur, Ala., and Birmingham, which later became part of the Southern Wheel Company, died on November 24, at Jacksonville, Fla. Mr. Moore was born at Charleston, S. C., 71 years ago. For the past few years he has been engaged in selling locomotive grate bars and locomotive automatic fire doors, with headquarters at Jacksonville.

Financial

ALTON.—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon a portion of a branch line extending from a point near, Fulton, Mo., to South Cedar City, 24 miles.

LOUISVILLE & NASHVILLE.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its line from North Alabama Junction to Searles, Ala.

MISSOURI PACIFIC.—Abandonment.—The Interstate Commerce Commission has authorized the abandonment of a branch line from Fredonia, Kan., to Peru Junction, approximately 40 miles.

NEW YORK CENTRAL.—Released from Obligation as to Acquisition of B. C., G. & A.—The Interstate Commerce Commission, upon further hearing, has set aside the provisions of previous orders requiring an offer by this company to acquire and operate the Boyne City, Gaylord & Alpena and has released it from the obligation incurred in accepting these provisions, which were among the conditions imposed in connection with the authorization to lease the Michigan Central and Big Four. Commissioners Meyer, Porter, McManamy and Aitchison dissented. Commissioner Porter in his dissenting opinion said that the action of the majority in this case "is a perfect exemplification of the fact that if you will

but prolong a controversy long enough and come back to the commission often enough your chances of winning out are excellent." Both he and Commissioner Meyer said the N. Y. C. should have been required to operate the segment of the line west of Gaylord, Mich.

PERE MARQUETTE.—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon that part of its Reeds Lake branch extending from Hall street, Grand Rapids, Mich., easterly to the end of the line, 1.1 miles.

ST. LOUIS-SAN FRANCISCO.—Abandonment.—The Interstate Commerce Commission has authorized this company and its receivers to abandon its so-called Platter cut-off extending from Kiersey, Okla., to Texas Junction, 9.2 miles.

ST. LOUIS-SAN FRANCISCO.—Abandonment.—The trustees have applied to the Interstate Commerce Commission for authority to abandon branch lines as follows: Galena, Kan., to Webb City, Mo., 13.86 miles; Van Duser, Mo., to Bloomfield, 17.3 miles; Clinton, Mo., and Tracy Junction to Phenix, 110.3 miles; Weir City, Kan., to Mackie, 2.8 miles; Galloway, Mo., to Chadwick, 26.1 miles; Marquette, Mo., to Brooks Junction, 25.9 miles; Weir Junction, Kan., to Weir City, 2.7 miles; Brownwood, Mo., to Zalma, 8.6 miles; Mt. Bernon, Mo., to Greenfield, 23.6 miles.

ST. LOUIS-SAN FRANCISCO.—R. F. C. Report Suggests Merger With M-K-T.—A merger of the St. Louis-San Francisco with the Missouri-Kansas-Texas, instead of with the Chicago, Rock Island & Pacific, as had been proposed, was suggested in a report presented by representatives of the Reconstruction Finance Corporation at a meeting of creditors of the company held in one of the Interstate Commerce Commission's rooms on November 24. The meeting was called by the trustees for a full exchange of views as to whether a reorganization is presently feasible. The report, prepared by Hilton M. Moore, examiner, and approved by J. W. Barriger, chief examiner of the railroad division of the R. F. C., included an extensive analysis of the history and condition of the Frisco property, reaching the conclusions that "it can be emphatically stated that the Frisco's difficulties are primarily the outgrowth of an unsound financial structure and secondarily the result of the depression. The physical property is well-developed in relation to its requirements, it is in good condition, and is well operated." Referring to the book investment in road and equipment of \$400,193,000, as compared with the Interstate Commerce Commission valuation, as adjusted up to September, of \$315,000,000, the report says that "inflated property accounts were established, in most part, to support an extravagant capitalization." "Little has been done to reduce this and, to the contrary, various reorganizations so far have only added further to the already top-heavy structure." Referring to the proposal for a merger with the Rock Island the report says that the savings in expenses are estimated at \$3,161,000 and that "it is felt that the potential savings are small in comparison with the size of

the two properties and that the real field for development of consolidation economies in the case of the Frisco lies in a merger with the Katy. These two properties now operate parallel and almost duplicate passenger and freight services between Fort Worth, Dallas and Kansas City; Fort Worth, Dallas and St. Louis; Oklahoma City, Tulsa and Kansas City; and Oklahoma City, Tulsa and St. Louis. A single operation could effect train-mile savings of almost 50 per cent on the services over these competitive routes and this in turn would permit the relegation of long sections of both properties between Fort Worth and Kansas City and between Parsons and Oklahoma City to secondary standards. The Katy would lend fine strength at Frisco's weakest point—Texas, and the Frisco in turn would strengthen the Katy in Missouri. There are, of course, similar opportunities for reciprocal feeding in a Rock Island-Frisco merger, and the savings above estimated do not allow for the increased earnings possible through holding tonnage to the united property for longer hauls. . . . However, those two properties do not supplement each other to the same extent as the Katy and Frisco and they would not form nearly as well integrated a whole."

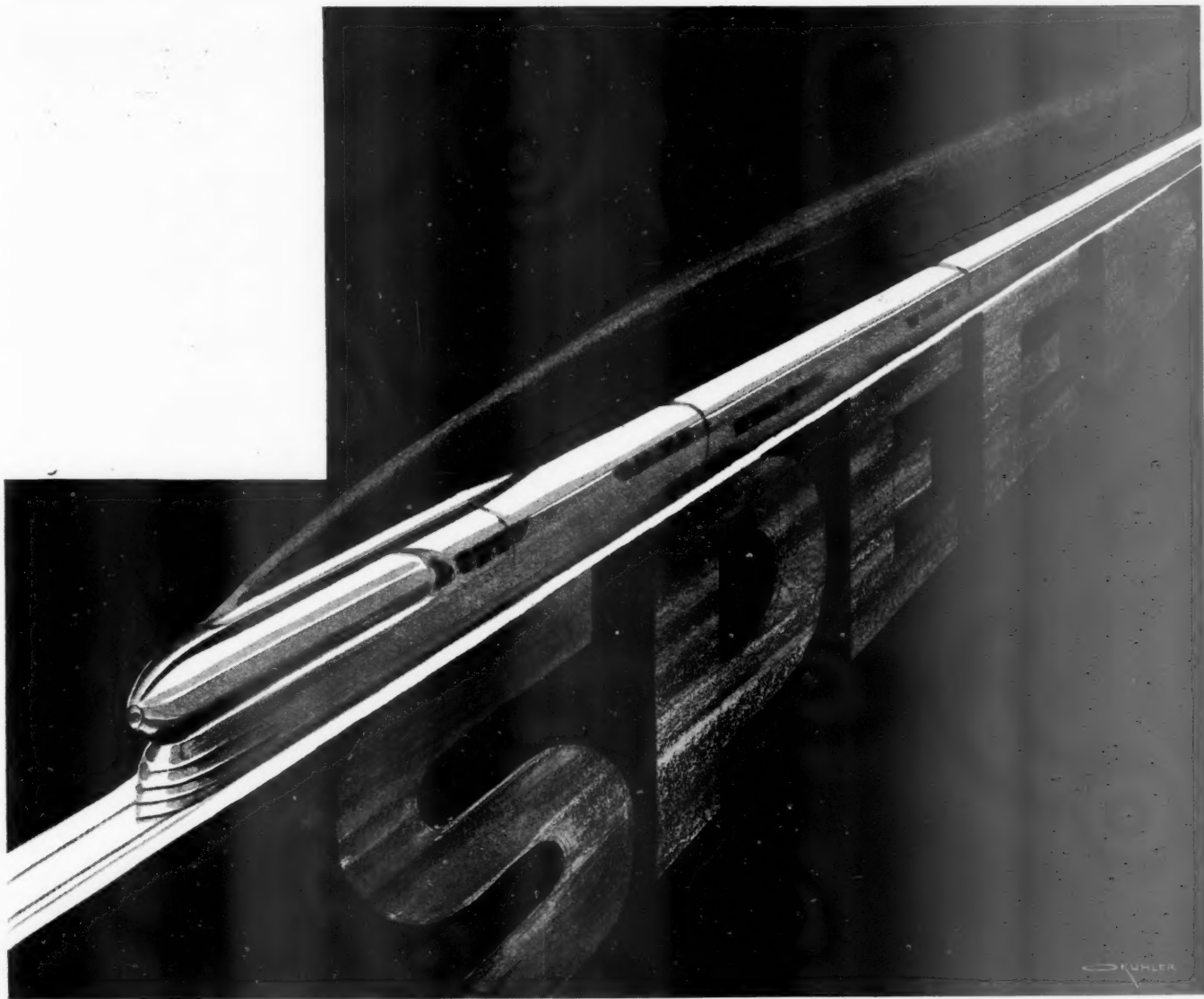
Conclusions stated in the report are in part as follows:

"The financial structure of a railroad largely determines its constitution, and just as with individuals, this is often fixed by hereditary influences. The details of capitalization of most railroads are legacies of former years. . . . Financial difficulties usually result from a lack of proper balance between fixed capital charges and normal earning power. . . .

"The problem of the Frisco has been entirely one of finance. This is no exaggeration, in spite of the fact that the more obvious but essentially superficial diagnosis of its present plight is the traffic losses resulting from the depression. Had Atchison, U. P., or C. B. & Q., been forced to support, through the years, a capital structure as excessive in relation to Interstate Commerce Commission valuation and normal earning power as that of the Frisco, these sound companies would probably now, too, be in difficulty.

"Measured by every test, Frisco has shown commendable ability to hold traffic and convert its revenues into operating profits. The proportion of each dollar of Frisco's gross remaining as net railway operating income, in recent representative periods, exceeded that of each of those three strong western lines, Atchison, Union Pacific and Burlington, in every period except the last, when Frisco's ratio of 16.8 per cent was very slightly below the others, due probably to the inability of the Frisco, as a result of its lighter traffic, to make quite the same relative train-mile reductions which would have been possible had it been moving a tonnage density comparable to the three larger lines.

"The problem of the Frisco has been that, while it could save an equal or a greater proportion of gross for net than the three lines previously mentioned, each dollar of Frisco's net railway operating income has had to support a much heavier



AMERICAN LOCOMOTIVE COMPANY

WE are hearing a great deal of late about speed and what it is going to do for our railroads.

Any old timer in the game, and not so very old at that, would probably say, "Well, certainly, times do change." For it isn't so long ago when if one mentioned much about speed, he would get hushed from every corner.

Almost every engineer can tell you of some occasion when he just opened up everything wide and did some real speeding—but, of course, it was off the record.

But some of these speeds are on the record. Almost all mechanical men know of one large system in particular where a modern steam locomotive with 6 to 7 Pullmans, over a section of its run, day-in and day-out, exceeded 100 miles per hour.

And there is another large system that has a modern steam locomotive that on level stretches can continuously do 90

miles per hour with 12 to 14 of our present Pullmans.

And looking back, we find that on the Philadelphia & Reading Railway, an Atlantic type locomotive on its run from Camden to Atlantic City, a distance of 55.5 miles, from August 5th to August 31st, 1898, running every week day, the **average** speed never fell below 70.5 m. p. h., and on August 5th, 1898, the **average** speed was 74.4 m. p. h.

And we could continue ad libitum.

Now the point is this—true, speeds of late, for reasons best known to the railroads themselves, have been kept within certain limits, but it is not because of any inability of the steam locomotive.

The steam locomotive can make, and in fact has made, any of the speeds that we are being told will revolutionize railroading today.

30 CHURCH STREET NEW YORK N.Y.

We are prepared to submit streamlined designs, steam or diesel powered as desired, to meet any or every demand of our railroads.

burden of debt service than did the earnings of those other companies. Had the Frisco been capitalized in the same proportions as they, and had its dividends been held to the similar percentages of those lines, Frisco would be financially sound today. . . .

"If Frisco had a capitalization in balance with the money actually expended in creation of the property, it would probably be making one of the most strikingly favorable records of any railroad in the country, during good times and bad alike.

"Even under the trying conditions of the present times, Frisco can support a capital structure of conservative proportions. Should a reorganization be effected, to obtain such a capitalization, it will enable all creditors of the road to transform the defaulted obligations of the present company into securities of a reorganized one which will promptly restore a portion of the lapsed income in values. This process may involve separation of part of the present stockholders' interests from their former proportionate claim, but this claim may have no longer any material basis in fact and reorganization requires only a formal recognition of a loss which has actually occurred and been fully experienced and discounted. Given a capital structure of total amount commensurate with the Interstate Commerce Commission valuation, and conservatively apportioned between fixed income, contingent income, and equity securities, the Frisco will probably be placed beyond the reach of economic disturbances to undermine as long as private operation of railroads remains."

SOUTHERN PACIFIC.—Abandonment.—The Interstate Commerce Commission has authorized this company and the South Pacific Coast to abandon a part of the Boulder Creek branch of the latter company from a point near Felton, Calif., to the end of the line at Boulder Creek, 7 miles. This company and the Arizona Eastern have been authorized to abandon a part of the Amster branch of the latter company from Amster Junction, Ariz., to Amster, 4.4 miles. The Southern Pacific and the Porterville Northeastern have been authorized to abandon 0.5 mile of the line of the latter company near Magnesite, Calif.

WABASH.—W. S. Franklin Authorized To Serve As President.—Division 4 of the Interstate Commerce Commission has issued an order supplemental to that of October 26 in which it had authorized Walter S. Franklin to serve as an officer and director of the Pennsylvania, authorizing him to hold the positions also of president and director of the Wabash. His application for authority to serve as director of the Lehigh Valley is still reserved for further consideration.

Dividends Declared

Cincinnati, New Orleans & Texas Pacific.—Common, \$8.00, payable December 26 to holders of record December 5; Preferred, \$1.25, quarterly, payable December 1 to holders of record November 25.

Columbus & Xenia.—\$1.00; Extra, \$1.00; both payable December 11 to holders of record November 25.

Dayton & Michigan.—8 Per Cent Preferred,

\$1.00, quarterly, payable January 2 to holders of record December 15.

North Pennsylvania.—\$1.00, payable November 25 to holders of record November 20.

Reading.—2nd Preferred, \$.50, quarterly, payable January 11 to holders of record December 21.

Average Prices of Stocks and of Bonds

	Nov. 28	Last week	Last year
Average price of 20 representative railway stocks..	36.43	38.54	23.51
Average price of 20 representative railway bonds..	62.83	62.06	56.86

Railway Officers

EXECUTIVE

H. W. Burtness, assistant to the president of the Chicago Great Western at Chicago, has been elected also secretary, to succeed **William G. Lerch**, deceased.

FINANCIAL, LEGAL AND ACCOUNTING

J. L. Walker has been appointed freight claim agent of the Seaboard Air Line, with headquarters at Portsmouth, Va., succeeding **W. C. Moore**, deceased.

Robert E. Keck, assistant to the claims attorney of the Northern Pacific, with headquarters at St. Paul, Minn., has been promoted to general claim agent, with the same headquarters, to succeed **William F. Every**, deceased.

MECHANICAL

J. W. Lemon, who has been appointed mechanical superintendent of the lines of the Missouri Pacific in Texas and Louisiana, as noted in the *Railway Age* of November 25, was born at Newton, Kan., on February 24, 1879. Prior to going with the Missouri Pacific on March 25, 1902,



J. W. Lemon

Mr. Lemon served for a time in the mechanical department of the Denver & Rio Grande Western at Pueblo, Colo. His first position on the Missouri Pacific was that of machinist at Hoisington, Kan.,

from which he was promoted through the positions of foreman, general foreman and master mechanic. In 1924 Mr. Lemon was advanced to superintendent of shops at Sedalia, Mo., which position he was holding at the time of his recent appointment.

W. H. McAmis, who has been appointed mechanical superintendent of the Missouri Pacific, with headquarters at St. Louis, Mo., as noted in the *Railway Age* of November 25, has been connected with the mechanical department of various railroads for nearly 40 years. He was born on February 7, 1878, at Rising Fawn, Ga., and entered railway service in 1894



W. H. McAmis

serving as a machinist apprentice, foreman, general foreman and master mechanic on various railroads until 1924. In that year Mr. McAmis accepted a position with the Missouri Pacific as master mechanic at Hoisington, Kan., being promoted to superintendent of shops at North Little Rock, Ark., in 1926. In January, 1933, he was further advanced to assistant mechanical superintendent at St. Louis which position he was holding at the time of his recent appointment.

OPERATING

McMurray Gaines has been appointed assistant to the general manager of the Tennessee Central, with headquarters at Nashville, Tenn.

ENGINEERING AND SIGNALING

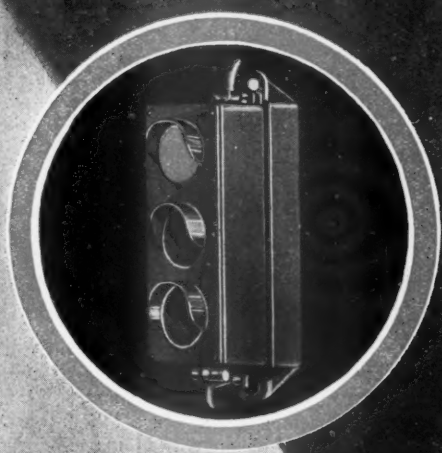
George E. Luther, scale inspector for the Boston & Maine, has been appointed chief scale inspector, with headquarters at Boston, Mass., succeeding **L. H. Gordon**, deceased.

OBITUARY

William G. Lerch, vice-president and secretary of the Chicago Great Western with headquarters at Chicago, died on November 21 at his home at Highland Park, a suburb of Chicago. Mr. Lerch's railroad career included service with a number of railroads in this country and in Mexico. He was born on June 16, 1871, at Erie, Pa., and entered railway service in

Continued on next left-hand page

SPEED



Rail speeds from 75 to 100 miles an hour are no longer referred to as remote possibilities . . . they are discussed in the present tense. But such train speeds demand a modern signal system as the needed requisite in providing that flexibility of operation with safety which is so essential.

"Union" Coded Continuous Cab Signals assist materially in obtaining and maintaining the high speeds that enable users to produce more ton and passenger miles per train hour at less cost. If you are planning schedule improvements, let "Union" Cab Signals assist.



1881

Union Switch & Signal Co.
SWISSVALE, PA.

1933

January, 1894, with the Duluth, Missabe & Northern, where he served as a stenographer in the general manager's office and as chief clerk to the vice-president. For brief periods during 1897, Mr. Lerch served successively as a clerk in the general superintendent's office of the Chicago, St. Paul, Minneapolis & Omaha, and in the vice-president's office of the Missouri-Kansas-Texas. In September of that year he was appointed chief clerk in charge of purchases of the Colorado Midland (now the Midland Terminal), which position he held until September, 1900, when he entered the service of the Chicago & Alton (now the Alton) as secretary and chief clerk to the late Samuel M. Felton,



William G. Lerch

then president of the Alton. Thereafter, until Mr. Felton's death in 1930, Mr. Lerch served as his confidential assistant on the various railroads with which he became connected. These positions included that of assistant to the president of the Mexican Central from January, 1908, to April, 1909; assistant to chairman of the Board of the Tennessee Central from May to September, 1909; and assistant to president of the Chicago Great Western from September, 1909, to 1926, serving also as secretary of the latter road from 1918 to 1926. In the latter year Mr. Lerch was elected vice-president and secretary of the Chicago Great Western, which position he held until his death.

Robert Bruce Coleman, general manager of the Atlanta & Saint Andrews Bay, with headquarters at Panama City, Fla., died in that city on November 22. Mr. Coleman was born on October 1, 1867, at Swainsboro, Ga. He entered railway service as agent and chief clerk in the accounting department of the Millen & Southwestern (part of Georgia & Florida) in August, 1887. Subsequently he served consecutively as auditor for the same road; auditor and general freight and passenger agent for the Middle Georgia & Atlantic (now part of the Central of Georgia); and special accountant for the Southern at Washington, D. C. From August, 1897 to 1905, Mr. Coleman was vice-president and general manager of the Georgia, Florida & Alabama. From March, 1905, to March, 1912, he was engaged in building and operating the Apalachicola Northern. He was appointed

general manager of the Georgia, Florida & Alabama in March, 1912, serving in that position until 1926 when the road was taken over by the Seaboard Air Line. At the time of his death Mr. Coleman was serving as general manager of the Atlanta & Saint Andrews Bay, a subsidiary of the Atchison, Topeka & Santa Fe.

M. L. Hayes, superintendent of transportation of the Missouri Pacific, who died on November 14, as noted in the *Railway Age* of November 25, was born on March 20, 1881, at Morrisonville, Ill. He attended St. Joseph's College at Tenopolis, Ill., and also obtained a business college education. Mr. Hayes first entered railway service in January, 1897, as a trackman on the Wabash, being appointed a clerk at Decatur, Ill., in February, 1900. He became connected with the Missouri Pacific in September of the same year as an assistant timekeeper, later serving as maintenance of way accountant, secretary and trainmaster's clerk. He was advanced to chief clerk to the superintendent at Coffeyville, Kan., on December 23, 1906, later serving in this capacity on several other divisions. In November, 1917, Mr. Hayes was appointed chief clerk to the superintendent of car service, at

St. Louis, Mo., where later he was promoted to chief car distributor in the general superintendent's office and then chief clerk to the general manager. He was further advanced to assistant general superintendent of transportation in September, 1925, and on February 16, 1932, he was promoted to superintendent of transportation at St. Louis, holding this position until his death.

Guy A. Deuel, general agent for the Missouri Pacific at Dallas, Tex., died on November 18, at the age of 57 years.

M. Dailey, former vice-president in charge of operations of the Chicago & Illinois Midland, died in Taylorville, Ill., on November 28.

Morton L. Byers, former consulting engineer for the Delaware & Hudson, died of heart disease on November 23 at his home in East Orange, N. J. Mr. Byers was 65 years of age.

R. B. Mann, assistant general manager of the Western lines of the Baltimore & Ohio, with headquarters at Cincinnati, O., died of a heart attack on November 26 while on a train traveling from Washington to Cincinnati. Mr. Mann was 60 years of age.



From the Locomotive Engineers Journal.

"Let's Have This Bill!"